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Notes on Parasites in 1926.

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The following table gives some of the most important parasites examined during the year. It is followed by a few remarks upon species of special interest.

Species Examined.

Name.	Host.	Locality.
Fungi :—		
Trichophyton sp. ...	Calf ...	Montgomery.
Microsporum equinum ...	Horse ...	Norfolk.
Protozoa :—		
Sarcocystis tenella ...	Sheep ...	West Riding and Lancs.
Eimeria faueri	Sheep ...	Cheshire.
Cestoda :—		
Cysticercus pisiformis ...	Wild Rabbit	West Riding.
C. tenuicollis	Sheep ...	Cheshire.
C. fasciolaris	Tame Mouse	Lancs.
Cœnurus serialis ...	Wild Rabbit	West Riding.
C. cerebralis	Sheep and Ox	Co. Mayo.
Echinococcus polymorphus	Ox & Pig	West Riding and Lancs.
Anoplocephala perfoliata	Horse ...	Lancs.
Moniezia planissima ...	Sheep ...	Lancs. and Cyprus.
M. expansa	Goat ...	Cyprus.
Dipylidium caninum ...	Dog ...	Middlesex and Lanark.
Davainea tetragona ...	Fowl ...	Cyprus.
Trematoda :—		
Fasciola hepatica ...	Sheep ...	Lancs.
Dicrocœlium dendriticum	Sheep ...	Scotland.
Nematoda :—		
Toxocara canis	Dog ...	Lancs.
Œsophagostomum radiatum	Ox ...	Rhodesia and Kent.
Chabertia ovina	Sheep ...	Cheshire.
Trichuris ovis	,, ...	,,
Bunostomum trigonocephalum	,, ...	Rhodesia.
Gaigeria pachyscelis ...	,, ...	,,
Trichonema sp.	Ass ...	Cyprus.
Strongyloides papillosus ...	Sheep ...	Lancs.
Allopoda suctoria ...	Fowl ...	Cyprus.
Acarina :—		
*Rhipicephalus sanguineus**	Dog ...	Nigeria.
*R. simus**	,, ...	,,
*Hæmaphysalis leachi** ...	,, ...	,,
*Hyalomma aegyptium** ...	,, ...	Cyprus.
Sarcoptes canis	,, ...	Lancs.
S. bovis	Ox ...	,,
Chorioptes bovis	,, ...	,,
Aleurobius farinae ...	Compound Cake	West Riding.
Cheyletus eruditus ...	,,	,, ,,
Tyroglyphus sp.	Sheep (fæces)	Glos.
Insecta :—		
Hypoderma bovis ...	Horse ...	,,
H. crossi	Goat ...	Cyprus.
Cephalomyia ovis ...	,, ...	,,
Chrysops relicta	—	Lancs.
Hæmatopinus eurystern ...	Ox ...	Uganda.
Laemobothrium titan ...	Kite ...	,,
Polyplax serratus† ...	Tame Mouse	Lancs.
Gyropus ovalis	Guinea-pig	Lancs.
Gliricola porcelli	,,	,,
Limothrips cerealium‡ ...	Horse ...	Suffolk.
Silvanus surinamensis‡ ...	Oats ...	Herts.

*†‡ Kindly determined by Mr. Cecil Warburton, M.A., Dr. J. Waterston aud Mr. F. Laing, respectiveiy.

Fungi. A very stubborn case of the *oospora* variety of *Microsporum equinum* was reported. This form affects adult horses and it appeared that there was constant re-infection from straw in this case.

Protozoa. *Eimeria faurei*, the coccidium of sheep, was found in lambs, where it produced bowel lesions but it was with difficulty that one convinced the attendant veterinarian that the numerous *Chabertia ovina* present were of little importance.

Cestoda. On three occasions the tapeworm *Anoplocephala perfoliata* was reported from horses, and twice segments only were noticed in the fæces. Although this worm is far from rare, it is not often that practitioners detect its presence by an inspection of the fæces. The segments somewhat resemble small hollow cones, the base being about the area of a wheat straw on section. Segments of *Dipylidium caninum* which had become dried and attached to the hairs of the hind quarters of dogs were examined on two occasions. In this position and condition they roughly resemble wheat grains and, without examination, may be thought to be insects.

Trematoda. A lamb's liver in the bile ducts of which there was quite a heavy infestation of the lanceolate fluke (*Dicrocœlium dendriticum*) did not show any visible alterations in its structure, neither was anything abnormal detected on section. It has been remarked in these notes and elsewhere in previous years that there is a small area in Scotland in which this parasite is endemic.

Nematoda. Five large ascarids (*Toxocara canis*) were found in the peritoneal cavity of a dog, without any indication as to how they had reached this situation. The cæcum of an ox showed lesions typical of "pimply gut" due to *Œsophagostomum radiatum*. The important pathogenic hookworm *Bunostomum trigonocephalum* was found in the intestine of Rhodesian sheep, together with *Gaigeria pacyhscelis*.

ACARINA. A scraping from a cow's skin revealed a mixed infection of mange mites, *viz.*, *Sarcoptes bovis* and *Chorioptes bovis*. A sample of compound feeding cake was found to contain vast numbers of the forage mite *Aleurobius farinæ* and a predaceous species *Cheyletus eruditus*. In a sample of fæces from a sheep there were large numbers of damaged mites, probably a species of *Tyroglyphus*, and numerous hypopial nymphs with the characteristic sucker plate on the ventral surface of the abdomen.

INSECTA. The pupa of the sheep-nostril fly (*Cephalomyia ovis*) was detected in the bronchi of a goat in Cyprus. The thrips fly (*Limothrips cerealium*) was found in skin scrapings from a horse. On another occasion large numbers were taken from a lady's dress, soon after a visit to some imported pets. This minute fly is common on cereals and in gardens and is the one often responsible for irritation of the skin on hot days. The small beetle *Silvanus surmamensis* was found damaging oats.

SPURIOUS PARASITES. What appeared to be some form of bean, with a brown testa, and a frayed anterior edge, were vomited by a dog and were regarded as ticks.

GENERAL. Several samples of fæces contained ascarid, strongylid and tapeworm eggs, and many fæces and skin scrapings were negative. In one case the owner of a dog was treated for a parasitic condition said to have been contracted from the dog, and causing marked pruritus ani, but repeated and careful examinations of the dog's fæces were negative, neither was the name of the parasite found in the patient obtained.

Damage to Cattle by Noxious Fumes.

STAFFORDSHIRE FARMER SUES PIT OWNERS.

The *Staffordshire Advertiser* (March 5th, 1927) reported that a case of considerable interest to the agricultural and mining communities was heard by Mr. Justice Roche and a special jury at the Staffordshire Assizes on March 1st—4th. Mr. Leonard Smallwood, Pitgreen Farm, Wolstanton, claimed £1,400 damages against Wolstanton, Ltd., the owners of a mine adjoining plaintiff's land, for injury to his farm and cattle alleged to have been caused by poisonous fumes from defendants' iron-calcining heaps.

Sir REGINALD COVENTRY, K.C. (for plaintiff), said that until a few years ago plaintiff was in a strong position as the tenant of the farm, but to-day he was almost ruined, because the Wolstanton Company had poisoned his farm. Mr. Smallwood had been looked upon as a very good farmer, who kept only the best dairy cattle and took a pride in them. He took Pitgreen Farm (97 acres) in 1920 at an annual rental of £149. He went there with 29 dairy cattle and for two years led a very successful existence there. But in April, 1922, the Company began to burn ironstone: it was not the first time colliery companies had burned ironstone in Staffordshire, and it was not the first time that farms had been ruined in consequence. In March, 1924, plaintiff realised that the defendants were responsible for the state of his cattle, and in the winter of 1924 the cattle began to die off "like flies." It was a significant fact that the fields behind the ridge on which the farmhouse stood, and farthest from the mine-hearths, were not contaminated at all by the fumes. Another significant fact was that during the coal dispute last year, when defendants were unable to calcine the ironstone, the cattle began to thrive again, and the pasture grass improved. Recently, the burning had been resumed, and plaintiff's cattle and herbage had gone back again.

PLAINTIFF, giving evidence in support of Counsel's statement, said that cow after cow went to a mere skeleton, many calves were born dead, and his crops of potatoes, oats and clover were completely ruined.

Mr. J. H. BALL, farmer, said that he had farmed at Pitgreen Farm for 40 years up to 1920. He left the farm because he learnt that burning of ironstone was going to start at the colliery. If he had stayed another year, the iron burning might have started, and then he should not have found a tenant. Witness referred to Grange Farm, Cobridge, and Park House Farm, and said that owing to the proximity of the ironstone burning plant, the land could not be farmed. At Grange Farm nothing could be grown, and all the cattle went "off." Cows went wrong, but horses could run on the land.

Mr. ARTHUR JOHNSON said that the house in which he lived was the nearest to the colliery. He bred rabbits and guinea-pigs, and in October, 1923, after feeding them with green stuff from his garden, four rabbits and two guinea-pigs died. The others went miserably thin and like greyhounds. He afterwards bought food from the market, and since then had had no trouble with his animals. He said when the wind was in one direction the house was filled with nasty evil-smelling fumes, which caused people to cough.

Mr. WILLIAM TRIGGER, F.R.C.V.S., Newcastle-under-Lyme, said that in January, 1925, plaintiff mentioned to him that he thought his cattle were being poisoned by fumes. When witness visited the farm, it was plain that the herbage was blackened and the tree tops were affected. The black deposit spread fan-shape from the colliery for about 300 yards. When he inspected the cattle, he found practically all of them were in a chronic condition, showing symptoms of indigestion; their coats were harsh, two were lame from arthritis and two were very much emaciated. They also had a chronic cough. The symptoms were consistent with chronic arsenical poisoning and inhaling of irritant sulphurous fumes. One cow when slaughtered was found to be suffering from tuberculosis, but witness said that this was not inconsistent with the theory of poisoning.

Mr. WILLIAM J. TART, M.R.C.V.S., Longton, said that he had examined the cattle and was present at the *post-mortem* examinations of two which were slaughtered. His opinion was that the cattle were suffering from chronic arsenical poisoning.

Dr. G. W. CLOUGH, professor of chemistry at the Royal Veterinary College, London, said that he had performed laboratory experiments on the calcination of a specimen of ironstone he had received from Mr. Trigger. The quantity of arsenic volatilised was approximately one-fifth part of a grain per pound, the amount of "fixed" arsenic was three-fifths of a grain per pound; volatile sulphur was approximately 56 grains per pound, whilst "fixed" sulphur was 70 grains per pound. He had found one-sixth part of a grain of arsenic per pound of one sample of grass from the pasture and one-third of a grain per pound of another sample. The amount of free and contained sulphuric acid was 42 grains per pound of one sample of grass and 84 grains per pound of another sample. The quantities corresponded with about five ounces of arsenic and 40 pounds of sulphuric acid per acre. Specimens of viscera from two cows were analysed; he had separated approximately $\frac{1}{60}$th of a grain of arsenic from two ounces of the duodenum of one cow, and $1\frac{1}{2}\frac{1}{0}$th of a grain from two ounces of stomach contents of another. Witness stated that he had visited plaintiff's farm and had seen the calcination process in operation. He had drawn the conclusion that the cattle were suffering from the effects of breathing air polluted with sulphurous and arsenical fumes and of eating grass contaminated with arsenic and sulphuric acid. In his opinion inhalation of the fumes would produce irritation of the respiratory organs and eating of the grass would cause indigestion and emaciation. Witness said he attributed the damage to the crops to the destructive action of sulphurous and sulphuric acids on vegetation.

Mr. G. H. Heywood, auctioneer, said plaintiff always purchased the best dairy cows; he gave details of the prices paid for plaintiff's cattle at auction.

The Defence.

Mr. J. B. Matthews, K C. (for defendants) said they had a complete answer to the claim, and he would call evidence to rebut the expert testimony given for plaintiff.

Mr. J. P. Winstanley, general manager of the Colliery Company, stated that he had never noticed any change in the condition of the herbage as described by plaintiff. Within a mile and a half of the colliery there were 115 factory chimneys, and each day 70 passenger and 70 goods trains with mineral traffic passed within a short distance. There were 650 men employed at the colliery, but no complaint of their being affected had been received. His contention was that if the herbage had deteriorated at all, it was due to bad farming. He refuted the suggestion that the fumes dropped on the land and said they were absorbed by the atmosphere.

Mr. D. Thornhill, farmer, said his farm abutted on defendant's colliery and comprised 30 acres. He had horses and cattle on the land, and he had never experienced any trouble on account of the company's operations.

Mr. F. W. Dean, farmer, of St. Albans, said he inspected plaintiff's farm and found that neither the cows nor the shippons were clean. He should say that during late years the place had not been well farmed. The neglect had been going on for at least two or three years.

Messrs. H. Broom and J. Harrison stated that they had put horses out to ley on plaintiff's land and had never had any trouble with the animals.

Mr. L. P. Mercier, mining engineer to the Company, said he had never observed that the grass had been blackened in a fan-shape for 300 yards from the calcining hearths. He produced several samples of grass which were examined by the jury.

Dr. J. T. Dunn, Newcastle-on-Tyne, public analyst, detailed his analysis of the ironstone and calcination products, the greater part of which, after combustion, he said, were retained, whilst dilution began before the gases escaped from the hearths. Witness believed that the sulphuric acid was deposited on the land from ordinary chimneys and not from the calcining plant. Only a very small quantity of arsenic was given off in the process of calcining, and it was inconceivable that the quantity was sufficient to poison plaintiff's cattle. Witness added that the fumes were neither offensive, noxious, poisonous nor unwholesome, and were not of such a character as could possibly do damage either to grass or to cattle.

Mr. C. H. Ridsdale, Middlesbrough, analytical chemist of 50 years' experience, stated that he had never known any detrimental effect on farms from calcined fumes. He said he had visited plaintiff's farm and adjoining area, and had taken a series of samples of grass and turf, which he analysed. According to his calculations the fumes emitted from the calcining process could not have been harmful to cattle or herbage in the way suggested in this action. He considered the complaints as to poisoning by arsenic or sulphur compounds were utterly unfounded.

Hector McIntyre, M.R.C.V.S., Leek, and Alexander Levie, F.R.C.V.S., Derby, who were called into consultation on behalf of the colliery to examine the herd and be present at the *post-mortem* examinations, said there were no signs of arsenical or sulphur dioxide poisoning in the herd. Mr. McIntyre formed the opinion that there was contagious abortion in the herd, and Mr. Levie said he attributed the poor condition of the animals to tuberculosis in the stock and bad feeding and farm management.

Speech for Defence.

Mr. Matthews, addressing the jury, said there was no dispute that something was gravely wrong with the herd, but he invited the jury to say that anything wrong started long before the colliery commenced calcining ironstone in 1922. His contention was that the trouble was not poisoning, but a form of abortion for which, apparently, there was no scientific name. The plaintiff contended that, although tuberculosis was present in the herd, it was brought on by the low, weak, and emaciated condition to which the cattle were reduced by poison from the fumes. He submitted that they had wholly failed to establish that that was the case. It was impossible to infer, from the mere fact that a minute particle of arsenic was found in a slaughtered cow's stomach, that this herd was suffering from chronic arsenical poisoning. Another remarkable fact was that no one had attempted to explain why cattle should suffer ill-effects from the fumes, when men were working throughout their lives without being harmed. Counsel submitted that the results of tests made at the calcining hearths should satisfy the jury that no sulphuric acid was given off in the fumes, and the presence of acid on the plaintiff's land would be accounted for by the numerous chimneys in the neighbourhoiod and the railway trains which passed the farm daily. He ventured to submit that all these things showed that the case had been based on a series of illusions.

Reply for Plaintiff.

Sir Reginald Coventry urged the jury not to lose sight of the fact that only a few months after calcining was started, a previously good farm started to go down, the crops failed, and the cattle became ill and developed into "screws." Commonsense, he thought, would tell them that the charge was caused by the fumes emitted in the process. It was ridiculous for defendants to suggest that, in the short space of two years, the crops and cattle were brought to the state they had heard described by bad farming. Early in the case it appeared that the defence would be that the cattle were suffering from contagious abortion, but that line of defence was dropped like a hot brick as soon as it was mentioned that the poor old bull died. Then came a suggestion that tuberculosis was the trouble with the herd; but if there were tuberculosis, it was a well-known fact that there was a pre-disposition to the disease if the cattle were in a low condition. Then the defence said that if there were arsenic on the land, it came in the smoke from the many chimneys of the district. The jury would remember, however, that the farm was carried on successfully for ages with all the chimneys there and it was not ruined until the defendants started calcining ironstone near by. He suggested that the difference in the analyses of the fumes by experts on the respective sides was due to a charge being made in the calcining process between the dates when the tests were made. He asked the jury to give a verdict for this most unfortunate gentleman, who had had a miserable time at this farm.

Judge's Summing-up.

His Lordship referred to the question of the honesty of the plaintiff and remarked that the conclusion the jury arrived at as to the general honesty of plaintiff might have an important effect on their deliberations. The jury might think tuberculosis had something so do with the state of the cattle, but that it would not have been so disastrous if arsenic and sulphur had not been present. If they came to the conclusion that sulphur and arsenic were present in damaging quantities, and that that made things worse, the proper verdict would be one for plaintiff; but the jury were entitled to take into account any diminution of the figures due to the presence of tuberculosis. As to the crops, the Judge said: A farmer can please himself as to the extent to which he keeps accounts—possibly in view of the Income Tax people. If a man claims against another and tells a jury so little as the plaintiff would tell you about what he got for his crops, he had only himself to thank if you give him as little as you think he deserves—if you discount all he says, and reduce his figures very considerably. The plaintiff was most unsatisfactory as to this; whether he could not or would not say, I do not know. Some people in rustic communities seem to think it is safer to say little.

THE VERDICT.

The jury returned a verdict for plaintiff, awarding him £650 damages.

Mr. Matthews said that the defendants' liability had now been fixed and they would be liable for any damage suffered by plaintiff until he left the farm. His submission was that this was not a case for an injunction.

The Judge stated he would not grant an injunction now. He desired to go further into the matter and was not at all sure that he should grant an injunction. He thanked the jury for the attention they had given to the case and requested the Under-Sheriff to arrange for them to be relieved of further service for five years.

Animal Welfare from the Point of View of the Veterinary Profession.

LECTURE BY MAJOR HOBDAY.

An illustrated lecture on the above subject was given by Major F. T. G. Hobday, C.M.G., F.R.C.V.S., F.R.S.E., under the auspices of the University of London Animal Welfare Society, at University College, Gower Street, London, on March 10th, 1927.

Professor Sir Arthur Mayo-Robson, who presided, said that his position as a surgeon and as Chairman of the Society for the Humane Slaughter of Animals for food, enabled him to appreciate the work undertaken by the Animal Welfare Society, and he instanced the Society's efforts to secure legislation to enforce the humane slaughter of animals as one of the many matters on which the Society was endeavouring to educate the public.

Cruelty was seldom intentional but generally due to ignorance or apathy. He had just been reading the history of China, "The Vanished Empire," by Patman Weale, and it had led him to wonder if her present terrible condition, only a repetition of similar revolutions occurring during past ages after every change of dynasty, was but really due to her almost complete disregard of saving suffering—nay, of actually causing it by fiendish cruelties, which had prevented her becoming a really civilised nation. The same thought had occurred to him in relation to Bolshevik Russia.

The remedies were education and example, and the activities of their Society might be more far reaching for good than perhaps even they had so far been able to see.

Major HOBDAY, in the course of his lecture, said that he had chosen that evening the subject of animal welfare from the point of view of the veterinary profession, because he believed that in the University of London Animal Welfare Society they had particularly a membership of those whose student life had developed an especially keen standard of intelligence for the promulgation of kindness to animals, of the most practical and sensible nature.

He thought that the members of the veterinary profession had a special qualification for working for the good of the animal by virtue, to begin with, of the inclination which led them to take up the profession of veterinary surgery, and afterwards of the daily round which kept them in continued contact with animals as patients.

The veterinary surgeon had to have a very sympathetic and even sentimental side to his daily life, as well as what might seem to the outsider, sometimes, to involve him in work of a hard-hearted nature, which made him consider what was best to be done to carry out "the greatest good for the greatest number." As illustrations of the former, he would mention at the moment the treatment of animal pets, such as the favourite dog of the household, which had indeed become a member of the family, and whose intelligence was almost (if not quite) equal to that of his master or mistress. Whilst consideration of the second point of view brought forward the work of the veterinary profession in furthering animal welfare under such conditions as the big outbreaks of disease like the one which had, within recent years, been brought to the public notice only too frequently—he referred to foot-and-mouth disease, which necessitated the wholesale destruction of herds. As they probably knew, steps of that kind, involving the compulsory slaughter of large numbers of cattle were taken by the orders of the Ministry of Agriculture who acted upon the advice of their veterinary staff, and that course was adopted entirely as a procedure of animal welfare.

One of the specific aims of that Society was set down as being "to disseminate knowledge of the needs of animals and animal management," and another "to initiate a movement which shall extend to Continental and other universities." In regard to the first of these two aims there was nobody could help more than the members of the veterinary profession, for by their scientific training they were made acquainted with the habits and daily life of all species of domesticated animals, their feeding and their general management, and, for those who are kept solely for working purposes, the veterinary surgeon was taught the amount of work which it was fair to ask those animals to do.

He did not think that the general public yet appreciated or knew what it meant for the student of veterinary medicine before he emerged as a fully-qualified veterinary surgeon. His matriculation was exactly the same as that of his *confrère* who started the study of human medicine; and if the veterinary student desired to take the University Degree, it was impossible for him to qualify for the degree of B.Sc. in Veterinary Medicine under a minimum period of five years. For the mere licence to practise he could not obtain the Diploma under four years, however clever he might be. But the greater proportion of men nowadays were not content with this and their aspirations almost always led them to the University Degree, with a further year of post-graduate study to obtain the qualification of the Diploma in Veterinary State Medicine.

They would see, therefore, that in obtaining the warm co-operation of the veterinary profession, the aims of the University of London Animal Welfare Society were likely to be considerably strengthened.

The second aim, "To initiate a movement which shall extend to Continental and other Universities," was, he thought, an especially well-thought-out and appropriate one, because, although they must not imagine that English people alone were the "salt of the earth" in regard to the prevention of animal cruelty, it was nevertheless a fact which could not be hidden from the eyes of those who travelled abroad in some of the Continental countries that their dumb animal friends were not so well cared for as they ought to be; and that was particularly noticeable in what were sometimes considered by some of our neighbours as small matters. He referred especially to such things as working horses, bullocks and dogs with sores under the harness, or when lame. A university had an advantage over every other body, in that its movements were initiated direct from the fountain head, as its members were men and women of high education and lofty ideals—a large proportion of them going forth to the world in the capacity of teachers and leaders.

Here, it might not be out of place to tell the ladies of the audience that, although a few years ago it would not have been possible for them to become qualified and join in the work which was being done for the welfare of animals by the veterinary profession, that had now been made possible, and they had already four duly qualified lady veterinary surgeons. There was a great future for the lady veterinary student, especially in small animal practices and in the study of the diseases of birds; for, as everybody knew, the sick dog and cat required gentle handling and the use of endearing terms, in both of which, he was afraid, the mere man had always to admit that he must take a second place.

Their Council, largely guided by the enthusiasm of Captain Hume, their Secretary, had drawn up in the prospectus setting forth the "Need for the existence of the Society," a number of headings which were divided into four clauses, and he should endeavour very largely to introduce under these headings the way by which the veterinary profession could be utilised.

The first heading was that of "suffering due to ignorance or thoughtlessness," and the paragraph commenced with

the words "Faulty Feeding, Housing and Treatment generally of Stock and of Pets." Here it was quite obvious that the amateur would make very many mistakes, and for the treatment of farm stock it was scarcely necessary to say that a man must go through a prolonged course of training as otherwise he would very soon find himself (that is if he was utilising his own capital) in the bankruptcy or police court. Even for the proper management of domesticated pets, such as the dog and cat, there was always a right way and a wrong way of which the owner ought to be aware. Take, for example, an instance of an animal mother of a family which had died before her young ones had become old enough to be weaned. It was very certain there, that faulty feeding, whether it was an animal of the farm or an animal of the house, would soon spell disaster; so that that owner of young animals in such a case would do well to seek the advice of a veterinary practitioner who would speedily give the necessary instructions which would avoid, in all probability, a lingering death for the patients, accompanied by what would be quite unintentional cruelty.

The lecturer here showed pictures of a few devices of interest as showing the ingenuity of man in providing foster mothers for animals left under such circumstances, and described their use.

In the question of housing, too, a good deal of suffering might be caused unintentionally, through ignorance or thoughtlessness on the part of the owner, by the habit (for instance) which was only too prevalent, not only in the country, but in the towns, in keeping a dog continuously chained up, especially if the chain was a short one. Unquestionably that was a cruel thing to do, and the veterinary surgeon was the man more than anybody else likely to see and, by his persuasion, to remedy, things of that kind as he went his daily round. Examples of faulty housing were frequently met with by veterinary surgeons in cases of what the sporting man called "kennel lameness," which was most prevalent in sporting dogs and packs of hounds which were allowed to sleep either on cement or brick floors, or in damp and draughty outside kennels. It was as a protection against rheumatism and to make kennels warmer, that one of the first things a wise owner thought of, either when building kennels or piggeries, was to provide a wooden platform slightly raised from the floor for the animals to sleep upon. Here they had two more illustrations of suffering caused entirely through ignorance.

For the treatment generally of farm stock and domestic pets, whether in health or disease, it was scarcely necessary to say that the members of the veterinary profession were the proper people to whom to apply for advice.

The Royal Society for the Prevention of Cruelty to Animals had given considerable thought to the most humane methods of catching a rabbit, and he had there what would probably be new to some of them, the latest pattern of snare which they recommended. Whether it was for birds such as the hawk, or whether it for animals such as the fox, or the wolf, or the jackal, he knew they would agree that the one which produced instantaneous death was always to be recommended on grounds of humanity.

That brought him to the paragraph in the syllabus which dealt with "objectionable methods of killing dogs, cats and other unwanted animals." That, above all others, was the one which belonged to the domain of veterinary science, for the College teaching which the veterinary student had had in anatomy, physiology, in therapeutics (or the action of drugs), and indeed, in every part of the College curriculum, had made him, above all others, a specialist in subjects of that kind. For the painless destruction of the larger animals, there was no question but that some method which instantaneously shattered the brain was the surest and best, and, although for an animal which was not going to be used for food, the actual instrument selected to do that was not of special moment so long as it did it effectually, there was considerable controversy at the present time as to what ought to be used for this purpose for the animals whose flesh was intended for the food of man. In the case of a wild animal, such as the lion or tiger, a bullet which came from the muzzle of a rifle was undoubtedly the surest; and for the domestic animals, such as the horse and cow—he would say, for the purposes of illustration, that a horse was lying on a country road with an incurably broken leg—a shot gun was generally the most easily obtainable and was perfectly effective. A shot gun, however, was not selected for the destruction of animals in the slaughter-house, as they had other instruments which were equally effective without danger, and which did not smash up the brain (a valuable article of food). As to the merits of the so-called humane killer, the pole-axe and the hammer, he did not intend to introduce any points there which would be controversial, as that subject was always worthy of a discussion to itself with debaters who had practical knowledge of the subject, who lived on the other side of the fence. So far as the humanity of killing was concerned, his own opinion (and he could claim to have had considerable experience in English, Continental and American slaughterhouses) was that it was a question of effectiveness in application. The pole axe and the hammer were just as effective in causing instantaneous loss of consciousness, *if* the blow which was given was a skilled one; and it was here that the so-called "humane killer" undoubtedly had its advantage, for it was so much easier of application so long as the man had an idea which portion of the skull the brain was under.

Of the smaller animals, the methods in common vogue were, shooting, the lethal chamber, electrocution, destruction by euthanasia (morphia and chloroform or chloroform alone) and the use of various poisons, such as prussic acid, strychnine, arsenic, squills, plaster of Paris, etc. The shot gun had the objection, when applied to one's favourite dog or cat, that it caused the shedding of blood, and to many of them this was revolting. Any poison which was slow in its effects and caused agonising pain, such as arsenic or strychnine, was obviously objectionable, and he thought that those which found the most favour and which he himself believed to be painless were electrocution, which was instantaneous, or in the case of the cat, the lethal chamber, or in the dog the use of chloroform preceded by a sleeping dose of morphia. In skilled hands he believed those to be methods to which one could safely invite the owner of a favourite dog or cat to be a witness of the end. Prussic acid was certainly very quick indeed in its effects, but it had the disadvantage that the animal would sometimes give an agonising shriek or series of groans and the muscles of the body would be thrown into violent contortions. Probably before that occurred consciousness had supervened, but it was very distressing to the owner and quite unnecessary if only the other methods could be used.

The only other paragraphs with which he proposed to deal as being in the category of "suffering due to ignorance" were "inadequate skilled inspection of the land transit of animals" and "the importation of animals under bad conditions at sea." Those were dealt with by the laws of the country, and they would have observed that only a few days ago considerable space was given in the lay press to the proposals of the Ministry of Agriculture which would have the effect of prohibiting the carriage of cattle on the forward top parts of open decks during the winter months. The article which was published in *The Times* of the 28th February last, upon the subject, stated that "The strengthening of the existing orders was known to be prompted by an increased interest taken by the public in the manner in which animals are carried, and by a desire that the conditions should be as humane as possible. It is proposed that the new Order should take effect as from April 1st, and in the meantime, an assurance has been given on behalf of the Coast Shipping Lines that no cattle would be carried on an open deck forward when bad weather threatens." The proposals particularly effected the transport of cattle from Ireland, the Isle of Man, the Channel Islands and Canada; and the regulations were understood to have been largely traceable to the sufferings of animals in the North Atlantic last year in a ship which encountered weather of exceptional severity. Approximately, it was estimated, a million cattle were brought from Ireland every year and a number of the Irish shipping authorities appeared to be

of opinion that the carriage of the cattle on deck was considered preferable on grounds of health, to their transport below deck.

In framing orders of that kind, naturally the men who had practical experience of the actual conditions to which the cattle were shipped and carried must be taken into account, and it was here that the veterinary officials of the Ministry of Agriculture played *their* part in advising the leaders of the Government as to what was best to adopt for the welfare of the animal.

As regarded the inadequate skilled inspection of the land transit of animals, one must not forget that the British public had the law in its own hands and that in cases of cruelty they had only to be reported by any layman to the police to be dealt with on their merits. Wisdom showed that complaints of that kind carried greater weight if supported by skilled scientific evidence such as could best be given by a qualified veterinary surgeon. That last remark applied particularly to the last paragraph which was promulgated in the pamphlet setting forth the need for the existence of that Animal Welfare Society, which gave as its heading: "Suffering caused by illegal practices which are capable of detection." Working of animals in an unfit state, either owing to sores or lameness, overloading, overdriving and the beating, kicking, wounding, burning, starving or neglecting of the various domesticated animals, were all instances in which, in any case of doubt, veterinary evidence was of inestimable value, for an over-zealous supporter of humanity to animals might unwittingly allow his or her heart to run away with her head, and formulate charges which were incapable of proof. An animal which was looking thin and showing its ribs during the convalescence of an illness was not necessarily being starved or cruelly used.

In conclusion, Major Hobday dealt with the advances which have been made by the veterinary profession in the humane treatment of animals. The conditions under which animals lived in civilised countries nowadays, was infinitely better than it used to be years ago, both in regard to housing, feeding and their treatment when sick. In all those things, the veterinary student could be legitimately said to be a trained specialist and it was his aim and means of livelihood to put that knowledge before the public when it was demanded of him. He would now show them on the screen as rapidly as possible, actual photographic instances of the kind of thing with which the veterinary practitioner meets in the course of his daily occupation.

Pictures were then shown, and descriptions given, of the Clinique at Camden Town, the work of the veterinary profession in the Great War, and of dogs with wooden legs and false teeth and eyes, and skiagraphs of objects swallowed by animals.

Reactors to the Tuberculin Test Slaughtered under U.S.A. Meat Inspection Rules.*

By J. R. MOHLER,
Chief, Bureau of Animal Industry, Washington.

Officials and inspectors of the bureau of animal industry frequently are asked to explain the disposal made of reactors condemned in tuberculosis-eradication work. Such cattle are slaughtered under federal meat inspection rules. Carcasses showing evidence of generalised tuberculosis may be used only for such purposes as fertiliser or other inedible products.

Portions of animals in which the lesions are small or localised may be passed for food purposes. The basis for this policy is explained in the following discussion, which is prompted by frequent suggestions that reactors to the tuberculin test should be totally destroyed.

In discussing the federal and state policy of salvaging cattle that react to the tuberculin test, let us bear in mind that total destruction of the carcasses of all reactors is not a new idea. Questions are received periodically from persons who have not understood how any part of the carcass of an animal, which reacted to tuberculin and was condemned as unfit for breeding and dairy purposes, could be passed as fit for food.

This matter has been given most careful consideration from the standpoints of both public health and economy, and I desire to make it plain that the disposition of carcases slaughtered under the Meat Inspection Act is founded on sound principles established by eminent physicians and veterinarians. Furthermore, the greatest care is used in carrying out these principles in the *post-mortem* inspection and disposition of the affected animals.

The term "healthy animals" is a relative one, and very few living creatures are free from abnormalities and minor ailments, diseased conditions, or the presence of parasites. In the course of slaughtering livestock which have not been subject to the tuberculin test, tuberculous animals frequently are found among the best steers, bulls, beef cows, dairy cows, calves, and hogs; and the same principles are applied to the inspection and disposition of all tuberculous animals, whether they originate within or without the areas engaged in tuberculosis-eradication work. The inspection is conducted uniformly in all cases and in all establishments throughout the entire country.

Scientists consider meat among the minor factors in the transmission of bovine tuberculosis to human beings. The principal means of its transmission is the raw milk of tuberculous cows. In every land and in every generation from early periods the human race has endeavoured to make safe for human consumption meat and other food products. In ancient times the Egyptians, in their food laws, designated certain animals—the hog, for instance—as unclean, and forbade men to eat of it. This prohibition was accepted by Semitic races and was incorporated into the Mosaic laws of the Israelites, but the Greeks and Romans had no prejudice against pork in their control of the meat supply. The Mohammedam food regulations of to-day are similar to the Egyptian food laws of ancient times.

A thoroughly safe meat inspection can not be conducted on the basis of prejudice or ancient belief. Such a service must be founded on scientific facts established through acquired knowledge of the various diseases. We believe that our meat inspection service meets this requirement.

When an animal reacts to tuberculin the reaction does not indicate the extent of the disease. A slight reaction may be found in an animal that is extensively affected with tuberculosis, or that has the disease only in its very early stages. However, even though a test were so delicate as to distinguish between cattle slightly affected and those more extensively involved, it would be impracticable to permit the former to remain in herds, since a slightly infected cow to-day may, within a few weeks, develop into an extensive case and spread the infection widely.

On *post-mortem* examination many reactors consigned to the shambles show but slight local lesions. To consign entire carcasses of such animals to the fertilising tank, or to bury such carcasses in trenches as was recently suggested, would be like throwing entire bunches of grapes into the garbage can because one or two small grapes on a bunch were unsound. It would be a wilful waste of wholesome food. It is presumed that these who question the present procedure of passing, as fit for food, wholesome meat from tuberculous animals would not wish to make any exception between tuberculosis in cattle and tuberculosis in swine, and would have the entire carcasses of both cattle and swine condemned regardless of the fact that in a very high per centage of tuberculosis in both classes of animals the infection extends only to a few of the lymph glands or is localised in some organ.

Carcasses showing only such localised, encapsulated or calcified lesions are passed for human food. An ample quantity of surrounding tissue, also, is condemned along with the locally diseased parts. All generalised cases are condemned and sent to the fertiliser tank.

The committing of all tuberculous animals to the trench or fertiliser tank would impose upon the public a far greater economic loss than most people believe until they look

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carefully into the matter. It is estimated that the 7,039,724 swine "retained" on account of tuberculosis in 1925 would aggregate a total of more than a billion pounds of pork and lard. At an average live weight of 200 pounds and a market value of 10 cents per pound, the aggregate value of such hogs would exceed $140,000,000. Estimating the 322,925 cattle retained for tuberculosis at federally inspected abattoirs during the same year at an average weight of 1,000 pounds and a market value of 7 cents a pound, the loss from that source would amount to $22,604,750. The loss of both cattle and hogs would amount to more than $162,000,000 annually.

I am sure that after due consideration of the full merits of the case, unprejudiced minds will approve the practice now followed in the United States and in practically all foreign countries with respect to disposing of meat-producing animals at the time of slaughter. The condemning of entire carcasses of cattle and swine found to be tuberculous has been discussed many times. It has been thoroughly considered by the best authorities on meat inspection and we believe that in the light of our best knowledge and present procedure we are fully protecting the public health and at the same time conserving our meat supply.

Several years ago a commission was appointed to make an investigation of the meat inspection service of the United States. Among the recommendations submitted the following statement was made:—

"If there be any general error in the recommendations, this is in favour of the public rather than in favour of the butchers and packers. Several sections could be made less stringent without any danger to the health of the consumer."

Controlling and eradicating tuberculosis of livestock in the United States are very great pieces of work. They were put off for many years because of misunderstanding on the part of livestock owners and others. The livestock owners, however, have, during recent years, shown a strong sentiment in favour of the work.

It would be deplorable if the progress of the work were retarded through the dissemination of misinformation regarding the nature of the disease, the matter of handling the campaign, the disposition of tuberculous cattle, and other phases of the subject. There are several agencies attacking the work through prejudice against any organised method of controlling disease by scientific methods. These agencies do not believe in the germ theory, or the spread of disease from animal to animal or from man to man.

The livestock industry of the United States, with respect to tuberculosis, is in a very favourable condition compared with the livestock industry of foreign countries. In many of these countries the disease has spread beyond control, and there is no possibility of eradicating it, whereas in the United States the total percentage of the disease among cattle is probably less than three. We feel quite confident that if the co-operative campaign is continued as vigorously and successfully as it has been since 1917, within a few years the disease will be absolutely under control, and that it will gradually diminish until it is reduced to the minimum, if not entirely eradicated.

The Editorial of the Spring number of *Spillers Dog and Poultry Journal* states: "Among other important events due to take place in the near future, Spillers have been entrusted with the benching and feeding of the Royal Veterinary College Championship Dog Show. All the proceeds are being devoted to the Reconstruction Funds on behalf of the Royal Veterinary College. More about this at a later date.

"Copies of the journal will be forwarded to anyone sending his name and address to Spillers Victoria Foods, Ltd., 40 St. Mary Axe, London, E.C.3."

Erratum.—In Mr. Tustin's remarks, as recorded in an account of the "Clean Milk" Demonstration to Veterinary Surgeons in issue of March 26th, No. 13, Vol VII. (page 291, col. i., lines 10 and 11) for "scrub evil" read "scrub bull."

Dogs for Experimental Research.

The Attitude of the Royal College.

The President of the Royal College of Veterinary Surgeons, Lieut.-Col. J. W. Brittlebank, speaking on behalf of the Royal College, gave unstinted support to the Medical Profession in its opposition to the Dogs Protection Bill at a Conference of representatives of medical and scientific bodies, which was held on Monday at the British Medical Association House, Tavistock Square, W.C., in order to inform the public of the importance of experimental work on dogs and to demonstrate the solidarity of the profession in the matter. Mr. R. G. Hogarth, President of the British Medical Association, presided, and among the other representatives were Lieut.-Col. J. W. Brittlebank (Royal College of Veterinary Surgeons), Dr. Henry Dryerre (Royal "Dick" Veterinary College), Major F. T. G. Hobday (Royal Society of Medicine), Professor D. Kehoe (Veterinary College of Ireland), Dr. Leslie Sheather (Royal Society of Hygiene and Tropical Medicine), and Dr. A. W. Whitehouse (Glasgow Veterinary College).

The speakers dealt with the question from the points of view of the physician, the surgeon, the psychiatrist, the researcher, the veterinarian, and the general practitioner.

The following resolutions were unanimously passed:—

(i) That this conference, believing that any withdrawal or curtailment of the powers at present granted under licence and inspection will hinder medical research to the detriment of the health and well-being of the community, wishes to enter a strong protest against any Bill which has for its object further restrictions upon experimental work on dogs or other animals.

(ii) That this conference is of opinion that the existing law should be altered so as to permit, under proper provision for the prevention of pain and for efficient inspection and control, the use, for purposes of research, of some of the numerous stray and unowned dogs now taken up by the police and condemned to the lethal chamber, thus ensuring conditions which are essential to progress in physiological knowledge and to the application of this knowledge to the practice of medicine.

(iii) That copies of the above resolutions be sent to the Prime Minister and to the Home Secretary, together with a note of the names of those present at the conference and of the bodies they severally represent.

The Chairman said that he doubted whether 5 per cent. of the million signatories who were said to have signed a petition praying that the use of dogs for experimental purposes might be prohibited by law were aware of the humane conditions under which experiments were carried out. The overwhelming weight of expert scientific opinion laid stress on the special experimental value of the dog because of the near analogy of its form and digestive processes to those of the human being. When he considered at how cheap and low a rate even human life was commonly valued, he was amazed at the fluent tears and hysterical emotion of those who supported the Dogs Protection Bill. He hoped that that meeting, representative both of science and medicine, would impress on Parliament the duty of yielding nothing to that illogical, ill-balanced, and mischievous and dangerous clamour. Let the public trust the scientists, and trust them fully. It was not from science that they need apprehend cruelty to man or dog, but from ignorance steeped in sentimentality, lacking in vision, proportion, and self-control. (Cheers.)

Lord Dawson's Appeal.

Lord Dawson of Penn, speaking from the physician's point of view, said that it would be common ground that doctors were humane. It was part of their very make-up—one of the greatest of their traditions. Was it likely that men who were thus trained to care for human suffering would be drawn into any methods which were cruel and inconsiderate? However they approached the matter, they came up against the question—was it ethically justifiable to make use of animals for man's purposes? Were they justified in using them for food or as beasts of burden? Surely the answer to the ethical question was that such use was justifiable provided that the end in view was sufficiently beneficial to mankind. Was not the alleviation of pain and distress and suffering to be witnessed day by day in the hospitals sufficient reason for the use of animals for experimentation? As a profession they said, with a full sense of responsibility, that without experimentation with animals the medical profession could not carry on, and they asked once and for all that those of their colleagues who pursued knowledge in the laboratories with singleness of purpose and very little material reward should be left undisturbed, and that this constant harassing of them should be stopped.

If the public took the responsibility of saying that experimentation was not justifiable, the responsibility was theirs and the implications that followed it. Once the public understood what those implications were they would not be long in withdrawing their support from those who wished to prevent experimentation. The discovery of insulin was one of the crowning successes of years of investigation. Were the public prepared to say that experimentation must be stopped? What about diseases of the spleen, the causes of jaundice, and the formation of gall stones, all of which had been dealt with by experiments on animals? Take, again, typhoid, lockjaw, diphtheria. Was work in connexion with those to be stopped? Then there were new drugs. The dangers of childbirth had been diminished by a new drug which was tested on animals. Were they to be tested on the wives and daughters of the public? The public had to decide, and they had decided that experimentation on animals was right. The question of whether a dog, or some other animal, was necessary or not was one which could be settled by nobody but experts.

Sir Holburt Waring dealt with the question from the surgeon's point of view, and asked whether the promoters of the Dogs Bill would prefer that the surgical profession should make their experiments on their patients in order to make the necessary advance in surgery which they thought was possible. It was far more humane to use dogs for the purpose. He protested against the attitude of certain people, who looked upon surgeons as criminals, or potential criminals, and declared that the supervision of experimental work was effectively carried on.

Professor G. M. Robertson, Edinburgh, who spoke as a psychiatrist, said that progress at present was already greatly hindered by the difficulty of obtaining dogs for laboratory work.

Sir Thomas Lewis said that much had been made of the large number of dogs killed at University College. Their use at that centre of research work had been exceptional because it had been the chief in this country to study problems relating to the circulation and because for those problems the dogs were by far the most suitable animals that could be obtained.

The Veterinarians' View.

Lieut.-Col. J. W. Brittlebank, President of the Royal College of Veterinary Surgeons, said:—

Permit me, first of all, to express my extreme gratitude at being asked to come here to-day to associate myself with such a necessary movement as this, but I cannot, at the same time, but regret that there should have been any necessity in the year 1927, after all the wonderful years of progress, to have to reply to the many unprincipled accusations which are made against the great scientists who have to resort to experiments on animals.

It is not for me to refer at any length to the general questions which have been so admirably dealt with by the previous speakers. The Chairman referred to one aspect of this matter, however, in regard to which I must here ask your indulgence to listen to me for a moment. He said that he believed that a great deal of money was left, by people who were influenced by emotional propaganda, to societies whose object was supposed to be the eradication of suffering in animals. We of the Veterinary Profession have had considerable acquaintance with these bodies. Their emotional propaganda is extraordinarily effective, and if it were merely emotional and not unprincipled I do not think we should object to it as much as we do. But there are no lengths to which this emotional propaganda will not go in the statements which are made and I think it would be impossible to find any other civilised country in which it would be possible so to malign scientists as it is in this country—men who devote the best years of their life to carrying on research work of immense benefit to humanity, and not only to humanity, but also to the animal kingdom, the interests of which we of the Veterinary Profession are happy to serve. It does seem almost incredible that these men should be pilloried as blackguards in this year which witnesses the celebration of the 100th anniversary of the birth of Lord Lister.

I am here to offer you, on behalf of my profession, the most unqualified support we can give you. (Cheers). We believe that much of this propaganda is unprincipled and that many of those people who lend these anti-vivisectionist organisations their financial support are led to do so by reprehensible propaganda.

We see in many of our large towns to-day caravans which are labelled "Poor People's Dispensary for Sick Animals." These caravans are too often received with acclamation in almost all these centres; the Mayors go out in their robes of office sometimes to greet them. But who are these people who are carrying the lamp of healing amongst the suffering animal population? Is there a qualified veterinary surgeon or a medical man amongst them? and who shall say to what suffering the lower animals are put by these people in the sacred name in which they trade? A considerable enquiry is necessary, Mr. Chairman, if these people's hands are to be proved clean.

We as a profession are always ready—it is part of our very earliest training, Sir—to relieve pain; as you medical

men are taught, so are we; we have followed in your footsteps. There is not a man amongst us who, having seen animals in gross pain, would not do his utmost—having seen, for instance, a horse in the throes of abdominal colic—to relieve that unfortunate animal. But there is a vast difference; you cannot compare the animal with man. The mental attitude is entirely different.

Some of us have observed animals undergo the severest operations, some of them very drastic operations, in the years gone by, under circumstances where anæsthesia was impossible, and on completion of the operation the animal has got up, looked round for the bucket and begun to feed. There is no agony of anticipation and there is a capacity to forget such as no human being could ever possess.

A question which probably will not be solved in our time is the relationship between the diseases of animals and the diseases of man, but take the great work which is being done on distemper—an extraordinarily valuable work for the dog lover himself. Is that sort of work to be stopped, Mr .Chairman? That, I believe, it will be found, has a great bearing on human disease.

So far as we are concerned, we are with you to the bitter end. Science must not be interfered with; it must be allowed to carry on its work in the quiet, the dignified and unadvertised manner in which it has carried it on throughout the generations. (Hear, hear.)

I asked the Secretary to look up a letter we received from Lord Lister many years ago at the Royal College of Veterinary Surgeons, when we wrote to congratulate him on his elevation to the Peerage, in which we said that veterinary medicine and surgery had benefitted immensely through his work, and he replied that if veterinary surgery had benefitted through his work, so had he equally benefitted through veterinary science and the opportunity of working amongst animals.

I have nothing more to say, except to thank you for the opportunity of being here, and I am sure that my profession will be glad to act in any capacity whatever to secure the freedom of science. (Cheers.)

Major F. T. G. HOBDAY said, in the course of his remarks, that the public should not lose sight of the fact that the work which was being done on the dog was of great benefit to that animal. As a proof of the strength of the anti-vivisection laws, as they operated in London, he might tell them that, as a student he was always taught (nearly forty years ago) that the dog could not with safety be chloroformed for operations, and as a consequence, in those days the usual method was for one or two men to hold the dog by force for the operation to be done on the animal, screaming in agony. If chloroform was given, it was done in a very rough and ready way and in nine cases out of ten the patient died in consequence. When he began work as Professor of Surgery at the Royal Veterinary College, one of his first thoughts was to wonder why, if human beings could be chloroformed with safety, the dog could not be. In order to conduct the requisite experiments to provide an apparatus for the safe chloroforming of dogs for operation—(in which, he was proud to say, he succeeded (hear, hear)—he had to get four vivisection licences, and he had to get the one which anti-vivisectionists said was the most brutal of all—i.e., the one under which

(Continued at foot of next column.)

CLINICAL AND CASE REPORTS.

Some Notes on Hysteria in the Dog.

By R. H. SMYTHE, M.R.C.V.S., Camborne.

The author has, during the past five years, had an extensive experience of the disorder now popularly referred to as "hysteria," both in his own private kennel and also in a large number of establishments in the district devoted to breeding dogs for exhibition. These notes are merely a description of the malady, as it has occurred in this particular locality. According to accounts which have lately swelled the columns of the "doggy" press, the disorder is widespread throughout the British Isles, and continental breeders claim that the disease had been known to them, as such, for many years previous to its appearance in this country

Dog-breeding has probably never been conducted on such an extensive scale as at present, and there is no doubt that the glut of dogs has given rise, in many instances, to a condition of overcrowding in many breeding establishments, which is conducive to the spread of all transmissible diseases.

When "hysteria" appears in a kennel, it invariably shows itself in the younger inmates first, and gradually spreads to the older animals. Puppies of three months old appear the most susceptible and in these the symptoms are those associated with acute convulsions. Several of a litter are usually affected simultaneously, and at this age death is not uncommon. Usually, the fits last only for a few minutes, but in some cases they merge into coma which persists for twenty-four hours or more, terminating in recovery in most instances, but with a likelihood of further fits occurring, upon the least provocation.

Puppies under three months, so far as our experience goes, appear to be immune; it may be that the incubation period is a long one, presuming that the condition is due to a specific infection. We have on several occasions known suckling bitches affected, in common with other dogs, in the same kennel, whilst their puppies have remained healthy until after weaning, when they, in turn, have developed the characteristic symptoms. In older puppies and in adult dogs the symptoms are not so severe, in that they seldom reach the stage of coma.

As a rule, the first symptoms are rushing aimlessly about, barking in a peculiar falsetto tone, and attempting to hide under any available cover. Other inmates of the kennel then become excited, bark in unison and perform similar antics. In these early stages the appearance is that of a number of dogs badly frightened.

(Continued from previous column).

the animal was allowed to become conscious again. They would appreciate the importance of that in that connection. (Laughter.) He was branded as a vivisector and was so branded now. But in order to prove that the dog could be chloroformed with safety and to give that information to his *confrères*, he had to hold that licence. He did not think there could be furnished a stronger proof of the efficacy of the anti-vivisection laws. (Cheers.)

In adult dogs, the symptoms often only appear when the dog is taken for a walk. He stops suddenly, probably runs backwards for a few steps, barks in a high key repeatedly, and makes off at a gallop. Sometimes a convulsion cuts short his retreat. Usually, when recovering consciousness, the dog shows a disposition to bite. In one case, which came to our notice, a spaniel, usually very docile, whilst out shooting developed a fit and attacked his owner, who dodged him. He then turned his attention to the other member of the party and bit him severely through the shoulder. Half an hour later the dog was working normally.

Another spaniel, taken for a Sunday morning stroll, gave a yell, bolted, and was discovered a mile away, attached to the nether garments of a complete stranger. An Alsatian, which the writer was asked to destroy, in a kennel where the complaint was rife, escaped, and after doing damage among a flock of sheep, knocked down the owner's child, of whom he was normally very fond, and was shot after an hour's wandering.

These attacks often come on several times in a day, but in other instances several days or even weeks may supervene, the behaviour in the meantime being perfectly normal. Contrary to accounts of the disease in canine publications, our experience is that there is no loss of flesh or lack of appetite and, in place of the lingering deaths recorded, we find a tendency to complete recovery in the course of a few weeks or months.

Etiology. There is not the least doubt that pedigree and inbred dogs are more susceptible, although we have found that mongrel bitches, introduced as foster mothers, contracted the disease after a few weeks, whilst their own puppies, if any were retained, in every case remained healthy after weaning, as long as they remained under observation. This is a matter difficult to explain.

Whilst we are unable to offer any fresh theories as to the cause of the disease, the following negative observations help to disprove many of those already freely circulated :—

(1) There has been no reason to connect the occurrence of the symptoms with distemper, past or present. In two at least of the kennels in which the disease has been most prevalent, no apparent case of distemper had been observed for twelve months previously. Moreover, even dogs and bitches, advanced in years, have shared the attacks. These in no respect resemble chorea, as they are in nearly every case transitory and, although they tend to recur, in our experience at least, complete recovery is the rule, after a period ranging from weeks to months. In the intervals between attacks, the animal is apparently normal.

(2) Parasitic Affection of the Ear.

This has been expounded as the cause of hysteria and it is admitted that symbiotes are capable of causing similar symptoms, particularly when a number of dogs are herded together, as in the case of packs of hounds. In the particular outbreaks observed by the writer, however, careful microscopical examinations in many cases, both *ante* and *post-mortem*, failed to demonstrate their presence.

(3) Feeding.

Some writers have blamed "meat biscuits" and the toxins which it is alleged they may contain. We have observed outbreaks in dogs fed exclusively on cooked meat, in those fed wholly on raw meat, as well as in those fed on a mixture of meat and biscuit. In no instance, has a complete change of diet produced any beneficial effect.

(4) Worms.

The old fetish crops up with unfailing regularity. We confess that we have discovered ascarides and even tæniæ in many cases. The number present, however, has seldom been in excess of those found in *post-mortem* examination of animals which have died from other causes, *c.f.*, pneumonia, chorea or prussic acid poisoning, and their presence can only be regarded as evidence that a sufficient degree of gastro-enteritis has not been present to cause their removal.

The following positive observations may assist in throwing some light on conditions associated with the occurrence of the symptoms :—

(1) Foreign bodies in the stomach.

We do not think that this can be seriously considered as a cause *per se*, nevertheless, foreign substances are very frequently found in the stomachs of dogs which have been destroyed as the result of repeated convulsions. The writer recently removed from the stomach of a half-grown Alsatian puppy eight stones, the largest of which weighed three ounces, in addition to a piece of wire two inches in length.

(2) Two factors have been present in all the outbreaks observed, *viz.*, fleas and rats.

In the writer's private kennel, the advent of the disease was preceded by a sudden invasion of rats, which bit holes through the woodwork of the kennels and burrowed under the concrete floors. At the same time the dogs became infested with fleas, which persisted in spite of weekly baths in parasiticides, and probably the fleas were derived from the rats.

The same thing has been observed in one other normally-clean kennel, though in several of the establishments rats and fleas were not unknown previously. It is noteworthy that in several instances, where one or two of the dogs were kept in the dwelling house as pets, they entirely escaped the disease although they were fed on similar diet, and were occasionally in contact with those in the kennels. The dogs so treated would presumably be less subject to fleas and would be removed from the neighbourhood of rats.

In the writer's own kennel, destruction of the rats has been followed by complete disappearance of the disease. This may, of course, be merely coincidence or the result of time.

"Hysteria" appears to be a disease of kennels and is seldom seen in the single house dog or in the dog of the street. It is not hereditary, as puppies from bitches in the writer's possession which have recovered from the malady have shown no indication of the trouble.

It has been stated that the disease is communicable to ferrets, but a ferret introduced into an infected kennel by the writer three weeks previously to writing has not shown symptoms, up to date.

The disease appears to die out automatically in kennels where dogs are bred and no additions are made by purchase, in twelve months.

Leukæmia in the Dog associated with Injury.*

By J. Share-Jones, D.V.Sc., M.Sc., F.R.C.V.S.,
University of Liverpool.

Cases of leukæmia are not rare in the dog: amongst domestic animals the condition is most common in this species. The etiology is obscure. In the lower animals it is generally regarded as being of "a toxic-infectious origin." Although attempts have been frequently made to produce the disease artificially, they have not been successful. Such was the fate of the feeding experiments of Nocard, as also of the experiments of Cadiot, Gilbert, Marek, and several other workers who attempted to secure the result by subcutaneous or intravenous inoculations of emulsions from organs. Dealing with the disease in the human subject, Osler states that "in some instances it has followed a blow" (Osler: *Principles and Practice of Medicine.* Ed. viii. p. 741). Hence, the following case has been considered worthy of record.

The subject was a powerful Bulldog weighing 52 lbs., in condition, and eight years old. When chasing another dog he was trampled upon by a cart horse. He was picked up helpless and was thought to be expiring. Given some brandy, he revivied somewhat and was taken home. For three days he was unable to stand, for both hind legs appeared paralysed. He then seemed to recover quickly, regained the power of standing, and could walk slowly but with a swaying of the hinder parts of the body. Some serious injury to the spine was suspected, but improvement continued until the case was regarded as being well on the way to a complete recovery. Six months from the date of the injury, however, symptoms of leukæmia began to appear. There is no need here to enter into the symptomatology in detail, but three or four points are worthy of notice. The first point observed was a marked enlargement of the prescapular lymphatic glands on both sides. The glands enlarged rapidly and soon attained the size of a large walnut, *i.e.*, about double the normal. There were no adhesions; in fact, the gland was particularly free. Nothing else could be observed at this stage. Three to four weeks later, the animal began to lose spirit and became languid. He developed a peculiar arching of the loins and there was a falling of the flanks, particularly the left. Palpation on this side revealed the presence of a rounded swelling at first thought to be some tumour. On some days it developed to the size of an orange, on others it appeared much diminished. It was diagnosed as the base of the spleen. The area of liver dulness increased. The ventral border could be distinctly felt independently of the degree of fulness of the stomach, and hardening of the organ was quite apparent. Wasting was now rapid. The supra-spinous processes of the dorsal vertebræ became very prominent, and the bulk of the muscles quickly diminished. Enlargement of other lymphatic glands then became evident, the last observed being the popliteal. In the last stages this gland could be felt quite distinctly and, like the prescapular gland, its freedom was notable. The gland caused a rounded cutaneous projection which could be seen when the muscles wasted. The abdomen continued to enlarge, but there was no evidence of ascites. Dyspnœa became very marked and distressing. Hæmorrhages appeared on the buccal mucous membrane, and later on other membranes. The membranes were waxy and cold. Sight was impaired in the later stages from cloudiness of the cornea. The elbows were turned out and every effort made to increase the thoracic capacity. The patient, when standing, held the fore limbs well apart, *and the head down.* The respiratory sounds were audible for a considerable distance. The mouth was partially open and the lips pursed. Consciousness was preserved until the end. Death took place quite suddenly. The patient lay on the lawn, raised himself, walked about thirty yards to his master, then fell on his side and died with his head on his master's hands. This occurred about six months after the first symptoms of leukæmia appeared, or a year from the date of the injury.

Blood films taken periodically revealed the pictures of anæmia. The condition being recognised early, an unfavourable prognosis was given, and palliative measures were resorted to.

On *post-mortem*, the spleen was found to have attained enormous proportions. Its weight was 1 lb. 14½ ozs., against the weight of a normal spleen in a dog of this size of slightly over 3 ozs. The liver was also enlarged, but not

Fig. 1. Showing the bulging caused by the enlarged prescapular gland—the first noted.

Fig. 2. Showing the dropping of the flank and the bulging caused by the popliteal lymphatic gland.

* Read at the Joint Meeting of Medical and Veterinary Professions of North Wales at Chester, September, 1925. Report just received.

FIG. 3. Showing the habitual posture and the narrowness and arching of the loins.

FIG. 4. Showing the peculiar facial expression.

to such a degree. Its weight was 2 lbs. 7½ ozs., the normal weight being about 1 lb. 7 ozs.

Photographs were taken during the course of the disease. They show quite well the habitual posture assumed, the dropping of the flanks, the elevations caused by several enlarged lymphatic glands, the partially opened mouth, and the dulness of the eyes.

A Skeletal Curiosity.

By WILLIAM J. RICE, M.R.C.V.S., Montrose, N.B.

Whilst examining the cattle prior to slaughter at the local abattoir, I noticed that one beast had an abnormally thickened forearm with a prominent callosity pointing downwards and forwards between the dewlap and the affected limb. I requested the butcher to whom the animal belonged to boil down the limb "from elbow to knee," and I also traced the farmer who had fattened it at a local farm.

History: A two-year-old Irish bullock purchased off the grass last year. Had never shown any lameness or disability during its life. Imagine my surprise when the butcher presented me with the humerus, which I have sketched herewith.

To me the growth looked like a rib fused on to the bone proper, but I determined at once to forward the specimen to Dr. Whitehouse, of the Glasgow Veterinary College, to whom I am indebted for the following interesting discussion upon it.

The outgrowth is regarded by him as the right half of the manubrium sterni along with the first rib, which had been drawn down by a shortening of the pectoral muscles

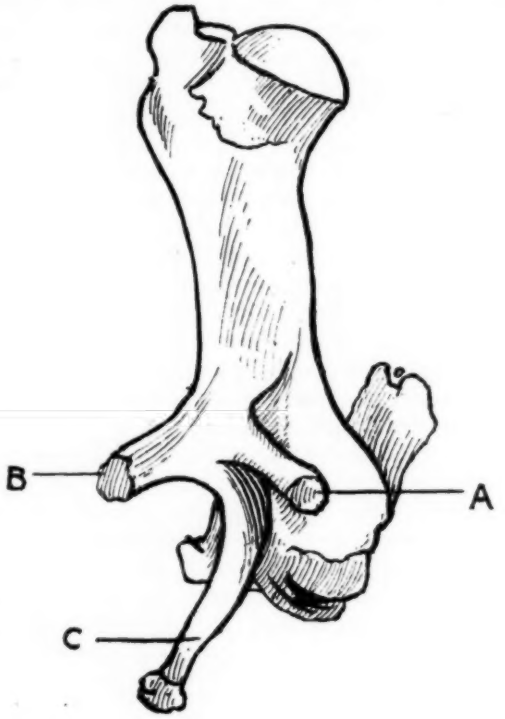

FIG. I. Antero-Internal Aspect.

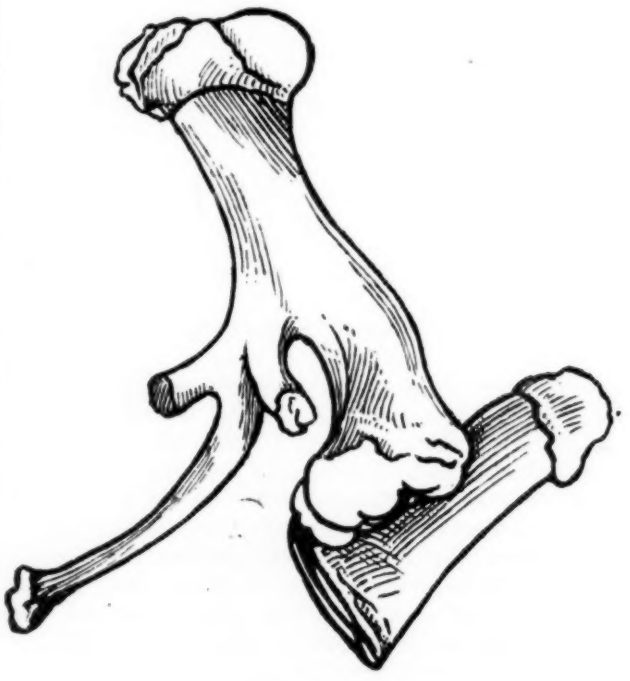

FIG. II. Internal Aspect.

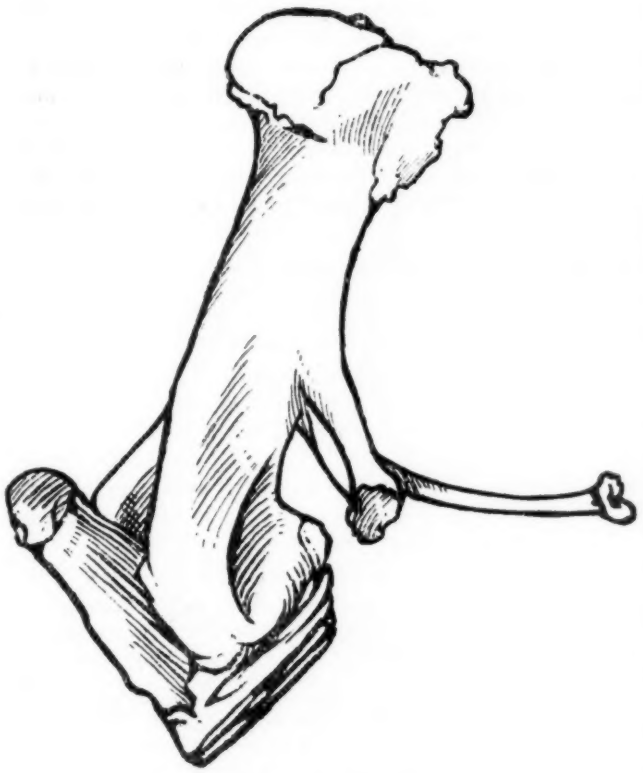

FIG. III. Postero-External Aspect.

during embryonic life. Another opinion regarded it only as "a freakish outgrowth," but a description of the bone in detail inclines one to uphold the first opinion. A muscle dissection before the bone was "boiled" revealed no definite muscles around the growth, there being only a preponderance of fibrous tissue. The external tuberosity of the head of the humerus was not developed and the deltoid process was flattened. The curved line running from the deltoid down the front of the shaft to form the musculo-spiral groove is replaced by the broad root of the growth.

The growth itself presented three processes (Fig. 1):—

(*a*) A short and rather small one with a rounded end pointing medially, *i.e.*, to the left;

(*b*) A slightly longer convex one, pointing laterally and downwards, *i.e.*, to the right;

(*c*) Between these two was a long, curved, rib-like process pointing downwards and forwards. This had a rough ragged end, suggesting an epiphyseal cartilage.

Dr. Whitehouse regards "(*c*) as being the shaft and distal extremity of the first rib, the head and tubercle having remained in their proper place; (*a*) as being the anterior end of the manubrium—a ridge to be observed on its anterior surface is very like one to be seen on the normal bone; (*b*) is the posterior end of the manubrium where it articulates with the second segment of the sternum. Two muscles normally insert on the curved line below the deltoid tuberosity—the Brachiocephalic and the Superficial Pectoral—one of these may have shortened in fœtal life, dragging down what was attached to its other end to this

(*Continued at foot of next column.*)

ABSTRACTS.

[Comparative Investigations on the Protective Action of Bacterial Extract of Killed and Living Abortion Bacilli, against Contagious Abortion. E. Herschell, *Berliner Tierärztliche Wochenschrift*, Vol. 43, No. 6, Feb. 11th, 1927, pp. 89-93].

In six herds of cattle infected with epizootic abortion, 205 cows and calves were inoculated against this disease, 80 with bacterial extract (Schreiber's Abortion), 76 with dead abortion bacilli (Antekrol) and 49 with living abortion bacilli (Ektrosan). The small number of animals treated with Ektrosan was due to external circumstances. As a rule, only non-pregnant animals were inoculated with Ektrosan. In order to equalise the chance of infection and the external and internal conditions, the animals from all six herds were divided up for treatment, so that the period of pregnancy, agglutination titre before inoculation, number of previous abortions etc. might fall into three inoculation groups as equally as possible. Only in the Ektrosan treatment, according to instructions, non-pregnant animals were chiefly inoculated. In order more clearly to demonstrate the action of the different inoculation materials, hygienic measures of treatment were not adopted.

If one ignores the two animals, one treated with Abortin and one with Ektrosan, which were only served 14 months after the end of the inoculation, as well as those Ektrosan cases which were not treated in accordance with the instructions (*i.e.*, in a pregnant condition or served before the end of one month after inoculation), there remain 198 animals.

Of those treated three times with bacterial extract (Schreiber's Abortin) 24 per cent. aborted, 7.6 per cent. did not become pregnant and 68.4 per cent. calved normally.

Of the cattle treated twice with dead whole bacteria (Antekrol), 14.5 per cent. aborted, 6.6 per cent. did not become pregnant and 78.9 per cent. calved normally.

Of the cows and calves inoculated twice with living abortion bacilli (Ektrosan), 4.6 per cent. aborted, 7.0 per cent. did not become pregnant and 88.4 per cent. calved normally.

According to this, the total loss after inoculation with Abortin is 50 per cent. greater than that after inoculation with Antekrol and 272 per cent. greater than after Ektrosan.

(*Continued from previous column.*)

insertion. For example, the Superficial Pectoral could very well bring down the manubrium and the rib which articulates with it, whereas, if the Brachiocephalic had shortened, one would have to suppose that this outgrowth represented a shoulder girdle, *i.e.*, clavicle and coracoid bone or the process and acromion of the scapula. This latter explanation is less probable, as the development of these structures is, of course, rudimentary in the ox."

The article and description may appear fanciful to many, but it afforded great interest to those who examined the bone and, at any rate, the title of the article is justified.

The results obtained confirm the hitherto prevailing opinion that the best results in combatting infectious abortion can be obtained with living abortion bacilli (Ektrosan). The next best results are obtained with dead bacteria (Antekrol), whilst the bacterial extract (Abortin-Schreiber) shows no favourable action. D. K.

[An Application of the Rapid-Method Agglutination Test to the Diagnosis of Bacillary White Diarrhoea Infection. R. A. Runnells, C. J. Coon, H. Farley and F. Thorp. *J. A. V.M. A.* Vol. 23. No. 5].

An article by Huddleston and Caulson detailing a rapid-method for the serum diagnosis of Bang's abortion disease in cattle (an abstract of this article appeared in this journal on January 22nd, 1927) is recalled, and the authors believed that this method could be applied to the detection of adult fowls affected with bacillary white diarrhœa. The rapid and the usual slow method have been compared on the sera of about 5,000 birds. At the outset, disagreements in the readings of the two methods occurred, but this difficulty was overcome by adopting another method of standardising the antigens for both the rapid and slow techniques. The advantages of the rapid-method over the slow method are numerous. Not only is a diagnosis quickly obtained, but it is cheaper and, it is claimed, more adaptable for field use than the slow method. The test can be performed on the farm, and the operations of bleeding, testing and removal of reactors carried out the same day. The tests are run on glass ruled off in inch squares, and .02 c.c. of specially concentrated antigen is pipetted on to two squares. The serum to be tested is now added, one square being given .02 c.c. and the second .01 c.c. Since the antigen is fifty times more concentrated than that used in the slow method, dilutions equal to 1:50 and 1:100 are obtained. The antigen and serum are now mixed with a toothpick and with positive sera, in most cases, flocculation begins immediately. W. L. S.

TRANSLATION.

Tuberculous Metritis of Domestic Carnivora.

By M. LESBOUYRIES.

There is no organ, there is no tissue, on which the bacillus of Koch may not exert its ravages, but the specific property of a bacillary lesion sometimes passes unnoticed: this is the case in the interpretation of numerous instances of tuberculous metritis in the bitch and the female cat.

We have frequently failed to recognise the tuberculous nature of inflammation of the matrix, attributing metritis almost always to an infection due to parturition or its consequences, or to an infection beginning at the lips of the vulva in the case of a virgin. But in our daily search for tuberculosis in the carnivora, we have been able to trace it in the uterus.

Tuberculous metritis may be primary or secondary, that is, it may be merely the sole manifestation of tuberculosis in an organism or it may represent an extension to the mucous membrane of the uterus of the bacillary infection already developing in one or several organs.

It presents special characters which merit notice. Developing slowly, it produces for several weeks no appreciable symptom. The first sign which attracts attention is the enlargement of the abdomen. The abdominal wall is stretched and tense; on palpation, we feel in the hollow of the flank a comparatively hard voluminous mass. But if we are called to examine the patient when the disease is already advanced, the abdomen is distended as in dropsy, and palpation, percussion, even succussion, do not always enable us to establish the differential diagnosis. This is all the more difficult in that exploration of the vagina and examination of the neck of the uterus cannot usually reveal the slightest trace of suppuration. The uterine cervix, being thickened, stops the catheter; sometimes, however, one succeeds in finding pus. This is yellowish, often blood-streaked, and clotted, which partially explains its retention or its difficult and intermittent excretion. Microscopic examination reveals the presence of a large number of pus globules, red corpuscles, and some bacilli of Koch.

In proportion to the intoxication set up by re-absorption of inflammatory matter accumulated in the uterus and—when these exist—to tuberculous lesions co-existing in other organs, the health of the patient is always seriously disturbed.

On *post-mortem* examination, the horns of the uterus present the appearance of two voluminous, knobbed, globular masses; they contain a large quantity of viscid pus. When emptied of their contents, their walls appear irregularly thickened; the mucous membrane is fungous, spotted with more or less extensive ulcerations and with small tubercles.

We have observed a tuberculous metritis which showed itself by the presence of an infinity of miliary granulations, forming as it were a covering which completely hid the mucous membrane. Contrary to what one might believe, the reactions of the lumbo-aortic and ilio-pelvic ganglia are not constant. The lesions of the uterus in female carnivora recall those observed in the cow.

Owing to lack of diagnosis of tuberculous metritis in the bitch and the female cat, we do not know if the proportion of uterine lesions in these species is the 6 per cent. estimated for the cow.

The theory of the origin of secondary metritis is variable; the extension may be made through the blood and lymph circulation. But it is probable that the infection is due sometimes to the elimination of bacilli by the urine, these gradually reaching the neck of the uterus; Cornil and Dobroklonsky have succeeded in producing tuberculosis of the uterus by injecting a culture into the vagina of the guinea-pig. Finally, one may note the possibility of vagino-uterine infection through coitus.—[*Ex Recueil de Médécine Vétérinaire* No. 2. January 30th, 1926.]

R. L. HIGGINS.

PERSONAL.

Appointment: **Mr. H. B. Allan, M.R.C.V.S., D.V.S.M., of the City of Birmingham Veterinary Department, has been appointed as Assistant County Veterinary Inspector to the County Council of Cumberland.**

DIVISIONAL REPORT.

North Midland Division.*

ANNUAL MEETING AT SHEFFIELD.

A REVIEW OF THE DISEASES OF DAIRY COWS MENTIONED IN THE MILK AND DAIRIES (CONSOLIDATION) ACT OF 1915 AND THE MILK AND DAIRIES ORDER OF 1926.

The Annual Meeting of this Division was held at Sheffield on January 11th, 1927, when the following were present: Messrs. C. Secker Smith (President) in the Chair; M. Robinson (Barnsley), E. F. Angler (Doncaster), J. S. S. Woodrow (Goole), R. Hudson (Retford), F. C. Scott (Pontefract), E. G. Johnson (Beighton), G. Green (Rotherham), H. Thompson, W. Tweed, S. G. Abbott, T. C. Fletcher, J. Abson (Sheffield), A. D. J. Brennan (Doncaster) a visitor, and the Hon. Secretary.

The *Minutes* of the last meeting, having been published in the *Veterinary Record*, were taken as read and were signed as correct.

The *Minutes* of the Council Meeting held on December 14th were read by the Hon. Secretary and were adopted.

The HON. SECRETARY stated that since the last meeting a member of the Division, Mr. Jones, had died, and it was agreed to send a letter of sympathy to the widow.

New Member.—Mr. C. P. Johnson (Penistone) was elected a member of the Division. The question of electing Mr. J. R. Hudson (who is away on Colonial Service) as an Honorary Member of the Association, was referred to the next meeting of the Council.

The Balance Sheet, which was adopted, showed a balance in bank of £41 12s. 11d.

Mr. A. D. J. Brennan was nominated for membership by Mr. Angler, seconded by Mr. Woodrow, and will come up for election at the next meeting.

ELECTION OF OFFICERS.

Arising out of the Minutes of last Council Meeting were recommendations for Officers of the Association for 1927. These recommendations were adopted by the meeting and are as follows: *President*, C. Secker Smith (re-election); *Vice-Presidents*, Messrs. Angler and Ludlow; *Hon. Auditors*, Messrs. Fletcher and Nixon; *Hon. Treasurer*, Mr H. Thompson (re-election); *Hon. Secretary*, Mr. J. S. Lloyd (re-election); *Council*, the above Officers, *ex-officio*, and Messrs. Bowett, Hudson, Sampson, Robinson, Scott and Collinson.

PRESIDENT'S ADDRESS.

The PRESIDENT then gave a short extemporary address from the Chair, in the course of which he said: Why did not the veterinary profession take its proper place amongst other professions and in regard to public health work? Some said the Royal College of Veterinary Surgeons should do more, but he did not agree; he thought petty jealousies amongst practising members of the profession held the profession back. If all joined together and showed a united front greater progress would be made. He knew that in some places the practising veterinary surgeons were unfriendly colleagues; he was glad to say they had always been friendly in Barnsley and they should be the same elsewhere. Friendly terms gave pleasure, unity and talks together about their different cases; they could work together and abstain from undercutting their charges. It was impossible for the Royal College of Veterinary Surgeons to fix a definite scale for fees or charges, but friendly discussion among the members would render it possible for this to be done. The local veterinary associations might take a more active part in this and arrange fees, charges, etc., for their respective districts. He believed in the old saying, "live and let live," and, in conclusion, hoped that that maxim would be carried out.

* Received on 2nd March, 1927.

Major ABSON proposed a hearty vote of thanks to the President for his address. Mr. FLETCHER, in seconding, said that he would go further even than the President—the local associations should advocate publicity—he did not believe in hiding a light under a bushel. The medical profession were always out to keep themselves before the public and they had done this for many years, with the result that they occupied the position of "top dog" and meant to stop there. He thought also that the Royal College of Veterinary Surgeons and the National Veterinary Medical Association might do even more for the profession than they had done.

The vote of thanks to the President was carried with applause.

A REVIEW OF THE DISEASES OF DAIRY COWS MENTIONED IN THE MILK AND DAIRIES (CONSOLIDATION) ACT OF 1915 AND THE MILK AND DAIRIES ORDER OF 1926.

Mr. W. TWEED, M.R.C.V.S., D.V.S.M., Sheffield, then presented his paper on the above subject as follows:—

In a paper with such scope it would be easy to get sufficient material for discussion in any one of the diseases, but I propose to deal particularly with the veterinary officer's duties, the diagnosis and the public health point of view of all the diseases mentioned in the Act and Order.

The Milk and Dairies (Consolidation) Act was made by Parliament in 1915. It was postponed twice and came into force in September, 1925. The Milk and Dairies Order was made under this Act and brought into force in October, 1926.

The Act and the Tuberculosis Order came into force on the same day in 1925 with the intention that, in dealing with tuberculosis under the Act, the Tuberculosis Order would automatically function for the slaughter of cases of tuberculosis.

Very little procedure was carried out under the Act until a year after its commencement, as a year's grace was given to Local Authorities for any local acts made on their behalf still to operate. After that time, September, 1926, these local acts were revoked by the Milk and Dairies (Consoldation) Act, in so far as they related to Milk Inspection and now the Milk and Dairies (Consolidation) Act, the Milk and Dairies Order and the Tuberculosis Order are a standard uniform law applicable to England and Wales for dealing with diseases of dairy cows likely to infect the milk supply with disease.

Definite diseases in dairy cows are laid down in the Milk and Dairies Act and Order from which the milk must not be exposed for sale for human consumption. These are as follows:—

(1) A cow giving tubercle bacilli in the milk.
(2) A cow suffering from emaciation due to tuberculosis.
(3) A cow suffering from tuberculosis of the udder.
(4) A cow suffering from acute inflammation of the udder.
(5) A cow suffering from acute mastitis.
(6) A cow suffering from actinomycosis of the udder.
(7) A cow suffering from anthrax.
(8) A cow suffering from foot-and-mouth disease.
(9) A cow suffering from suppuration of the udder.
(10) A cow suffering from any comatose condition.
(11) A cow suffering from any septic condition of the uterus.
(12) A cow suffering from any infection of the udder or teats which is likely to cause disease.

The responsible authority for the administration of the inspection of animals in the Act and Order are County Councils or County Borough Councils or any non-County Borough Council within a county which is a local authority for the purposes of the Contagious Diseases of Animals Acts and which has received special authority from the Minister of Health to administer these duties.

Veterinary Inspectors may be appointed at present by responsible authorities and shall be appointed when the Ministry of Health require the authorities to do so.

The Ministry of Health recommend in the making of appointments that the officers appointed be the same panel

of officers who carry out the duties under the Diseases of Animals Acts.

The primary duties of the veterinary officer in the Act are to examine dairy cows and, together with the Medical Officer of Health, make reports to the responsible authority on animals suffering from any of the above-mentioned diseases that the milk from such animals is in their opinion likely to cause disease if it is exposed for sale for human consumption.

The responsible authority can then serve an Order on the owner to stop the milk supply from any animal or animals being sold. This Order can be withdrawn by the medical officer of health when he is satisfied that disease is no longer likely to be caused from the milk. The duration of the period, therefore, varies until it is no longer dangerous to use the milk.

In the case of septic condition of the uterus or any comatose condition or any infection of the udder and teats likely to cause disease, the notices served on the owner to stop the milk from such cows are only for five day periods. These notices are served by an officer of the responsible authority and expire at the end of five days unless renewed for further five day periods until the officer is satisfied that the cow is no longer in an infective condition. This, therefore, gives power to stop the sale of milk from diseased cows and goes further than the Tuberculosis Order, Foot-and-Mouth Disease Order and Anthrax Order, which only provide that the milk be boiled or otherwise sterilised before being used.

There is another important veterinary officer's duty in the case of a report having been received by the medical officer of health of his authority from the medical officer of health of another district that tuberculous milk is being sent into the latter's district. The veterinary officer of the district where the milk is produced is required to examine the herd from which the milk was obtained and find the tuberculous cow or cows if possible. They are then slaughtered under the Tuberculosis Order.

The dairyman in this case has to receive notice of the officer's intended visit and examination, that he may have his veterinary surgeon present at the time of the examination of the herd if desired, and also the time and date of the examination of the herd must be sent to the authority whose medical officer of health reported the tuberculous milk, so that their veterinary officer may also be present at the examination.

These are special occasions in the duties and from the consuming area's point of view is not so simply worked as it was under their own local Acts. Under the local Acts, the consuming area's veterinary officer could go with a Magistrate's Order and make any examination of the herd himself. The tuberculous cows when found were reported and then dealt with by the veterinary inspector of the area under the Tuberculosis Order.

The responsible authority in their own area are also to authorise such inspections of cattle as are necessary for the purposes of the Milk and Dairies Act and Order.

To do these duties efficiently, routine inspection will be necessary, because five of the specified conditions, namely, a cow giving tubercle bacilli in the milk, any comatose condition, any septic condition of the uterus, acute inflammation of the udder, any infection of the udder and teats likely to cause disease are all unnotifiable by the owners.

The other seven diseases are notifiable under the Tuberculosis Order, Anthrax Order and Foot-and-Mouth Disease Order, and will therefore be reported to the local authority who will be responsible for dealing with these conditions under their respective legislation. It therefore rests on the responsible authority to discover these unnotifiable diseases in dairy herds, and to do this will require inspections at fairly short intervals.

Herein lies an advantage for the part-time veterinary officer under the Act who is also a practitioner and meets with these cases as patients. These diseased animals having been found, a diagnosis at all stages of the disease and the danger to the public from the consumption of milk must be made.

The veterinary officer making the examinations will no doubt have considerable latitude to use discretion in his report both in regard to the seriousness and duration of some of the diseases, but will be guided by giving the benefit of the disuse of the milk from such animals to the consumer.

The diagnosis of tuberculosis serves for the Tuberculosis Order to function for slaughter of the cows and so free the milk supply. In the other diseases, the prevention of mixing the milk with other milk and exposing it for sale must be carried out.

It is reported that cows may give tubercle bacilli in milk without the udder tissue being affected, and such cases will only be diagnosed by a biological test. These cases must be very few indeed and in a large percentage of such cases, if the udder tissue was sectioned and examined microscopically, tuberculous tissue would no doubt be found. A few cases are, however, met with where clinically it is impossible to find any lesion in the udder and in a guinea-pig test of the milk there is a positive result. Such cases are sometimes met with in the investigation and examination of a herd from which a mixed sample of milk was tuberculous. The cow may have a very early or localised tuberculous lesion in the udder, or she may only be showing definite clinical signs of tuberculosis elsewhere in the body.

A cow suffering from chronic cough and showing definite clinical signs of tuberculosis is not mentioned in the Act, but only emaciation due to tuberculosis, which no doubt is meant to include all T.B. conditions under one heading as being a possible source of danger that the milk may sooner or later contain tubercle bacilli. One must not overlook the possibility that these cases of emaciation may be excreting tubercle bacilli either in expectorate or excreta and liable to contaminate the milk.

In the diagnosis of such cases, if possible a sample of sputum should be taken and examined for tubercle bacilli if the clinical symptoms be doubtful. If the sputum contains tubercle bacilli it is fairly definite evidence that the lungs are extensively diseased. Microscopic examination of fæces and urine is not satisfactory, but a sputum microscopic test is superior to the tuberculin test.

Tuberculosis of the udder is a separate category by itself. The advantage of having it so, is that a cow may be killed on clinical examination of the udder alone. However, it is not advisable to do so except in exceptional cases. The clinical appearance in a typical T.B. udder is a cold, non-painful hard induration. The surface of the induration is rough to the touch and the skin of the udder is loosely attached. Outside of this description you get all variations, from a diffuse induration accompanied by mastitis to that of a very localised induration, which may all be secreting tubercle bacilli. For definite evidence of tuberculosis in the udder, a microscopic examination of a sample of the milk should be made. This should be done if possible by the officer who makes the clinical examination, and on finding acid-fast bacilli he has no hesitation in saying they are tubercle bacilli if the clinical appearance of the udder is suspicious and his microscope technique is correct.

The disuse of the milk from such cows is therefore assured by having the cow killed and saves the delay incurred if sent to a laboratory for the guinea-pig test.

The microscopic examination of milk is not beyond the ability of any qualified veterinary surgeon and he has a decided advantage over the medical bacteriologist in a laboratory who has not the clinical appearance of the udder to safeguard his opinion on acid-fast bacilli.

The microscopic examination of milk is tedious if there are many examinations to be made, and as often happens, tubercle bacilli are not plentiful in some samples.

Within the past year a useful guide has been obtained as to the length of time one should spend in searching for bacilli and, if unsuccessful in finding them, is an aid to decide in sending the sample for a biological test, taking the clinical appearance of the udder into consideration as well.

The method is carefully to note the cellular content of the milk as seen in the stained film. Torrance, in a paper given to this Association in 1922, pointed out the significance of

finding in tuberculous milks what he called "cell clumps" of pale staining flat cells overlapping on one another. Since starting duty in Sheffield, a careful record of the cellular content of all milks examined has been kept to ascertain the reliability or otherwise of the presence of these cells as a guide in microscopic examinations. It has been found that the clusters of oval cells referred to, while not being typical of a tuberculous milk are, however, to be found in 77 per cent. of such samples and only to the extent of 2 per cent. in negative samples. These percentages have been ascertained from the total number of positive samples examined up to date with the number which showed these cells and also the total number of negatives examined which showed these cells. Moreover, throughout a T.B. smear these cells are found to be a very high percentage of the total cells present, even though they may not be in clusters and the high percentage of oval cells present is just as diagnostic.

These cells are, as a rule, quite easily recognised after some practice, and are seen by staining with the ordinary Zeihl-Neilson stain for tubercle.

For the present, for purposes of identification, they may be described as oval cells, their cytoplasm stains a pale transparent blue and their nuclei appear as dark spots about pin-head size scattered throughout the cell. Should a high percentage of these cells be present throughout a smear or found in the clusters mentioned above, a prolonged search for bacilli should be made and, if unsuccessful, the sample may be sent for the biological test.

In staining for tubercle bacilli, as thin smears of the deposit as possible should be made for, apart from a better cellular examination, it facilitates decolorisation of the smear and it is also easier to find the bacilli.

In making use of the cellular content to distinguish between a mastitis and a tuberculous udder induration when no bacilli have been found microscopically, one is guided by the number and percentage of leucocytes that are present in the milk. There is a high percentage of multinuclear leucocytes present in a mastitis smear and these appear as dark blue irregular cells when stained by the Z.-N. method. This type of cell is also met with in a tuberculous milk from a T.B. udder complicated with mastitis and it has no doubt led many authorities to misname the cells in a true tuberculous milk as "pus cells." True tuberculosis of the udder is not a pustular condition and polymorpho-nuclear cells form a very small percentage of the cells present in a smear from an udder uncomplicated by mastitis.

Herein lies a practical method of forming an idea of what disease one is dealing with, as the difference in the two types of cells can be distinguished by fixing the smear by heat and without using any special cellular stain other than the Zeihl-Neilson method for tubercle. The record shows, however, that the cellular content is an aid to the microscopic examination of milks but that tuberculosis may occasionally be accompanied with mastitis and contain a large number of pus cells. It also shows that these oval cells are not peculiar to tuberculous milks alone, as they are present, but in a smaller percentage, in all milks from any induration and should not be looked upon with absolute confidence other than as a diagnostic feature combined with the clinical appearance of the udder.

The significance of obtaining a positive microscopic examination of milk is that it eliminates tubercle infection as quickly as possible from the milk supply and removes the danger of ingestion by children, which is an important public health measure.

Actinomycosis of the udder manifests itself as a chronic induration of the gland. It is very rare, and difficult to diagnose *ante-mortem*. If the disease is suspected, samples of milk should be forwarded to a laboratory for diagnosis. Cases are occasionally met with in the abattoirs and very much resemble a tuberculous udder. They can sometimes be distinguished on *post-mortem* by the irregular fibrosis with soft spots containing yellow granules. From a public health pont of view it is important in that it has been suggested that many human cases of actinomycosis are due to the same organism which causes bovine actinomycosis.

In anthrax, where an animal has died from this disease, the milk from any in-contact animals which show elevated temperature should not be allowed to be sold for human consumption. This precaution should be taken in view of the fact that anthrax bacilli soon enter the milk in the affected animal when they make their appearance in the blood. In some experiments anthrax bacilli have been demonstrated in the blood before death and this shows the possibility that infection might be present in the milk from a cow even although the quantity of milk produced by an infected animal may to a large extent be arrested before death occurs. It is, therefore, an important public health measure carefully to guard against the danger of suspicious contact animals when a definite case of anthrax has occurred in a dairy. Diagnosis of anthrax in a suspected animal is done by making a fairly thick smear of blood. It is dried and fixed, then stained by 1 per cent. aqueous solution of methylene blue. If a purple colour reaction in the smear is given, accompanied by a large number of bacilli, it is suspicious of anthrax. If a green reaction is produced and the bacilli are few, it is usually negative. If in doubt, a Gram stain may be made. The anthrax bacilli are Gram positive with square ends.

In foot-and-mouth disease it is hoped that public health officials will have no necessary action to take as regards the milk supply in an outbreak of this disease. Some cases have been reported of human infection occurring from such milk, but it has not yet been definitely proved that such infection in humans can take place.

Any comatose condition includes diseases such as milk fever, mineral and vegetable poisoning, uræmic poisoning, etc. These conditions will have to be treated according to the seriousness of the case and the medicinal treatment which has been given. It is well to remember that drugs such as purgatives, essential oils and iodides impart their flavour or their medicinal properties through the mammary glands, and the milk from animals receiving treatment is, therefore, unfit for human use. If local treatment has been applied, as for example in milk fever, the function of the gland is deranged as well as the milk being colostrum milk, which is injurious to infants.

Any septic condition of the uterus applies particularly to retention of the placenta, where contamination of the udder takes place and organisms gain entrance from milkers' hands. The animal is also in an unhealthy condition, due to the septic condition of the uterus. These animals should also be isolated, as a putrid odour often accompanies the retention.

Any infection of the udder and teats likely to cause disease might be taken in the broad sense of the term to mean any of the above-named conditions, but includes such conditions as variola, ringworm, and any other sores which are liable to become pustular and from which streptococci and other organisms may gain entrance to the milk.

Acute inflammation of the udder, acute mastitis and suppuration of the udder for convenience may be classed as three stages of one disease.

The most common causal organisms are streptococci, but either staphylococci, coliform or diphtheroid organisms may be found to be the causal organisms. One or more quarters may be affected and the milk secretion is altered. The disease may quickly subside and the milk regain its normal appearance, or it may follow on as acute mastitis to suppuration of the udder. This milk in a recovered case should not, however, be used for some time, as a large percentage of leucocytes and organisms may be present although the milk may appear normal. A difficulty is encountered, when the duration of the disease in one quarter is long, in deciding for the use of the milk from the other three quarters.

It has been definitely proved that in some cases organisms are secreted in the milk from the other apparently healthy quarters, and the only ready means by which one can ascertain of its suitability or otherwise for human consumption is to judge the amount of deposit shown on centri-

fugalising a sample of the milk, note the colour of the milk in the tube, and make an examination for the presence of organisms. In freshly drawn samples, if the sediment is large, or if organisms are present in it, the milk must not be used.

From a public health point of view, udder disease is important. Medical authorities have attributed outbreaks of septic throat and cervical gland infections to pathogenic streptococci from such milk and also coliform infections in children, but further investigation both of the causal organisms in udder disease and the rôle they play in causing human disease has yet to be carried out.

In view of this fact and the amount of laboratory diagnosis required in the diseases of animals, one might take the opportunity of stating that a whole-time veterinary bacteriologist should be appointed by each responsible authority. He can examine animals, do laboratory diagnosis and advise part-time veterinary officers in the above-mentioned diseases. Otherwise a large amount of material has to be forwarded, as it is to-day, to a Medical Public Health Laboratory.

Medical bacteriologists, working in conjunction with veterinary bacteriologists, are a good combination, especially in research where the work is of common interest, such as diseases transmissible from animals to man. But it is obvious that we, as a profession, are best fitted to make our own diagnosis of animal diseases.

It is hoped that if such a procedure is adopted it will remove the sense of being out of touch with the medical bacteriologist that can exist because of his lack of experience in field work of veterinary public health, and would result in more efficient administration in the duties connected with the various Acts and Orders.

Mr. Tweed then gave a microscopic demonstration of the cells found in different milks stained by the ordinary Zeihl-Neilson stain for tubercle and also by Jenner's stain, and the means of recognising the types of cells present. He also exhibited smears showing the causal organisms of mastitis and blood films stained for anthrax.

Discussion.

The discussion was opened by Mr. Fletcher, who said that he wished Mr. Tweed would go on and educate the members, especially the younger ones, say by giving a fortnightly paper and demonstration on matters arising with meat and milk inspection or any other veterinary subject of interest. The quarter of the udder showing decreased temperature (cold quarter) he most commonly met with in gangrene of the udder. He wished Mr. Tweed would explain how he got 77 per cent. of the cluster cells in microscopic examination. He had never seen a case of actinomycosis of the udder and would like to know if it would be detected in the structure of the udder during life by acting upon the udder as with a harpoon. He would like also an explanation of the difference between the violet and green colours demonstrated in suspected anthrax. He also wished to know the opinion of the meeting as to the use of milk from cows retaining the placenta. Did members think that proper washing of the hind quarter and udder with disinfectant would be sufficient to warrant the use of the milk? In convalescent cases of mastitis, at what stage of the disease would the milk be again fit for use? If they tested the milk from each quarter by allowing it to stand in glasses, his experience was that they would probably find the milk from three quarters all right, whilst the milk from the affected quarter would be wrong. Whilst the latter was the case, there was no doubt that the milk from the affected quarter ought not to be used for human food.

Mr. Hudson said he would like Mr. Tweed to state from where the oval cells came and, in making smears from suspected milk for microscopic examination, did he think the sedimentation was as good as centrifuging? What exhibition of symptoms was typical of a tuberculous udder? Would Mr. Lloyd or Mr. Tweed explain, as his experience in dealing with tuberculosis of the udder was small and he would like their guidance. In dealing with the microscopic examination for suspected anthrax, he took unstained slides from the blood of the foot as he considered the blood there did not undergo putrefaction so soon as that taken nearer the centre of the body. In his experience, examination of the unstained slides with the removal of the Abbé condenser gave satisfactory results. In diseases of the teat, he supposed suppurating wounds might contaminate the milk. One of the diseased conditions mentioned in the Order was a comatose condition affecting the milk; his experience was that there was not much milk to be found in a comatose cow and he had never known it to be used for human food. He thought the five days period for giving notice in regard to stoppage of the milk for sale was absurd. In case of a retained cleansing a much longer period than that was always required, whilst in regard to suppuration of the udder, pus could be discharging for two months or more, and he would like to know if the whole of the milk from the udder of such a cow would be considered dangerous. He thought a whole-time veterinary bacteriologist should be appointed for every county. His assistance would be welcomed by all practising veterinary surgeons in the county whether holding the post of local veterinary inspector or otherwise, whilst the local veterinary inspectors would be glad to work under county veterinary inspectors' supervision. He had met with many cases of hypertrophy of the udder gradually increasing in size; the milk was unaltered in the early stages, later gradually losing colour and consistency, the udder becoming so big that the animal had to be slaughtered. He also would like to know if septic wound or wounds in the udder had been known to cause sepsis in the milk, with corresponding danger to the consumer. When was mastitis sufficiently cured to allow of the milk being used again?

Mr. Scott desired information as to the use of milk in cases of leucorrhœa and, in regard to chronic cough, when was it certain to be due to tuberculosis?

Mr. Abbott stated that supernumerary teats were often in a state of chronic suppuration. He thought such teats were best removed in the animal's early life because at the first period of lactation (parturition) such teats were apt to be the seat of physiological congestion with some small secretion of milk. If this milk was left in the udder it was liable to become the seat of bacterial infection and multiplication. In the case of udders affected with actinomycosis, the organsms were acid-fast but not alcohol-fast and showed under the microscope branch filaments, whilst tubercle bacilli were both acid and alcohol-fast and did not show branch filaments. Mr. Tweed had mentioned the serving of Orders by responsible authorities, but there was a difference between an Order and a Notice—an Order was served by the responsible authority, whereas a Notice could be served by an officer of the authority. Mr. Abbott also mentioned that there was a great difference between the English and the Scottish Milk and Dairies Acts in following up tuberculous mixed samples of milk. In the English Act, the receiving authority, upon finding milk tuberculous, had to give notice to the sending authority with the result that several days elapsed before action could be taken, such action being taken by the sending authority, the local authority at the time of inspection being entitled to be represented. In the Scottish Act, the receiving authority carried out the inspection, at the same time giving notice to the sending authority so that it could be represented at the time. The working under the English Act was too slow and did not protect the consumers in the area of the receiving authority from getting tuberculous milk, occasionally for some weeks.

Mr. Green said he had listened with interest to Mr. Tweed's paper and thanked him for his demonstration of smears under the microscope. He was interested in the large oval cells and wondered whether the diagnosis of tuberculous milk would not soon be possible from the presence of particular cells. He practised removal of the supernumary teats in calves, cutting them off with sharp scissors, a practice which he had found gave very beneficial results. He was satisfied that inflammation of the

supernumary teats might spread to other parts of the udder and in such cases his practice was immediately to remove the supernumary teats and he found that cows affected soon recovered, whereas if he had left the supernumary teats to become convalescent he often found half of the udder become septic and its milk secreting power lost.

Mr. ROBINSON dealt with the prohibition of the use of milk from anthrax animals and stated that, in his experience, such milk was hardly ever present. In dealing with contact animals in suspected cases of anthrax, he thought the symptoms exhibited were rather negative than positive. He had met with several such cases and remembered one with a high temperature (107°F.) which got better whilst another cow in the same stall with a temperature of 106°F. died six days later from anthrax.

Mr. LLOYD, whilst considering that they might get contaminated milk from variola, thought the dirt eruptions on teats were much more common and drew attention to the scalding of the skin between the udder and the thighs caused by honing. Such discharges he found were very offensive and if obtaining an entrance to the milk would undoubtedly cause contamination. He would like Mr. Tweed to explain who served the notice for 24 hours and who for five days and under what circumstances the respective notices were served. He also stated that the abolition of Local Powers under local Acts for dealing with tuberculous infection in milk was a great mistake, as under the Milk and Dairies (Consolidation) Act, whilst the receiving authority took steps to discover tuberculous infection in the milk supplies, it was left to the sending local authorities to deal with the offending cows. They were not getting anything like such good results from the present system as they got under their old local powers. Owing to the rapidity and accuracy of the microscopic results of examining tuberculous milk, under the old powers it was quite a common thing for cows to be slaughtered within 24 or 48 hours of their discovery, whereas under the present powers the medical officer of health, veterinary inspector and bacteriologist had to deal with the milk from each suspected cow, with the result that several days and often weeks elapsed before the cows with tuberculosis of the udder were slaughtered. He also expressed the opinion that to rely upon notification of suspected udders by the owners of such cattle was of little or no benefit, whereas regular routine inspection of dairy cows would find a much larger number of affected udders, many in an early stage, with the result that the cows would be slaughtered, certainly to the benefit of the milk consumers and probably to the benefit of the owners, when carcases of such cows could be dealt with under the Tuberculosis Order and passed in whole or in part for human food. In regard to removing tuberculous infection in cowsheds, he considered that microscopic examination of the sputum coughed up by suspected cows would, in the great majority of cases, provide evidence sufficient for the removal of cows affected with tuberculosis and thus remove sources of infection from the other cattle in the cowsheds. Cows coughing up such sputum were, in his opinion, cows suffering from chronic cough and came definitely within the Tuberculosis Order. Regarding in-contact cattle, in connection with outbreaks of anthrax, he made it a routine practice to take the temperature of all cows near the affected animals or any cows in the sheds that were showing loss of appetite, fever symptoms, etc., and immediately to isolate such cows from the other cows in the infected sheds. He had had experience of several such cases where some of the cows with high temperatures recovered and others died within a day or two with anthrax.

In dealing with the secretion from cows convalescent from mastitis, he would test the milk by allowing it to stand in glasses with a control sample from a healthy quarter, and he did not think the owner was justified in using milk from an affected quarter until it was impossible to tell the difference between that milk and the control from a healthy quarter. The symptoms of the hypertrophied udder mentioned by Mr. Hudson were more or less typical of tuberculosis of the udder. The latter disease generally manifested itself as a hardening of the udder in the superior back part between the hind quarters. This hardening might be fairly diffuse, might be felt as one or more nodules, or might run down the back part of one of the hind quarters as a thickened cord. In other cases it might be found in the nodular form just below the base of the teat, either between the teats on one side or on the inside of the teats of opposite sides. In advanced cases, practically the whole of the quarter or quarters might become increased in size and very much hardened. Pressure upon the affected parts did not cause the animal any pain and the hardened part was quite free from the skin covering; occasionally, however, cases were met with where the owner or person in charge of the animal had been employing a strong liniment with the intention of effecting a cure; in such cases the skin became tender and pressure on the skin caused pain to the animal. In all cases it was necessary to examine the secretion of the affected quarter or quarters. In the early stages there was no visible alteration in the milk either in colour or consistency, later the milk became a brown-coloured serum showing flakes or flocculi of lymph upon sedimentation. The examination of the secretion was generally of great value where the udder had been treated by the owner or person in charge, as, if the cases had been going on for some time, there was the alteration of the milk just mentioned, this effectively showing that it was not a case of ordinary mastitis. There was, however, one condition (and he had lately had an example of it) where a cow might be affected with chronic induration of the udder practically typical of tuberculosis but decidedly non-tuberculous. The milk never became altered but gradually decreased in quantity, and, if sufficient time was allowed to elapse, the udder, instead of finally getting quite large as in tuberculosis, showed a tendency to become smaller by atrophy of the indurated udder tissue. Repeated examinations of the milk either by the microscope or by the biological test failed to show evidence of tuberculosis. Such cases were described by the late Professor Walley as chronic cases of interstitial mastitis.

In regard to Mr. Fletcher's suggestion that possibly lectures and demonstrations might be arranged for members of the Division, he would undertake to bring that to the notice of the Health Committee with a view to getting their consent for the use of the rooms in the Veterinary Department at the Town Hall for the purpose and would give the result of that request at the next meeting.

Mr. WOODROW asked to be enlightened as to the amount of inspections responsible authorities were asked to carry out.

Mr. BRENNAN pointed out that there were isolated cases of foot-and-mouth disease, and entry to the premises might be necessary by an officer under the Act if the milk was being used for making into products such as butter. Entry in such a case might be obtained under the Diseases of Animals Acts after a certain period had elapsed.

(To be continued).

H.M. STATIONERY OFFICE PUBLICATIONS.

The undermentioned have been published during the week. Copies can be purchased through any bookseller, or directly from H.M. Stationery Office, at the following addresses:—London: Adastral House, Kingsway, W.C.2, and 28 Abingdon Street, S.W.1; Cardiff: 1 St. Andrew's Crescent; Manchester: York Street; Edinburgh: 120 George Street.

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HOUSE OF COMMONS BILLS, 1927.	s. d.	s. d.
100. Destructive Insects and Pests. To amend the Destructive Insects and Pests Acts, 1877 and 1907	0 1	0 1½
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108. Diseases of Animals (H. L.). As amended by Standing Committee B ...	0 2	0 2½

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

Sept. 12-17th.—N.V.M.A. Congress at Torquay.
April 12th—Meeting of the Derbyshire Division at Derby.
April 13th—Meeting of the Lancashire Division at Liverpool.
April 29th—Meeting of the Mid-West and South Wales Division at Bath.

A "Record" Tribute.

"Your paper is developing wonderfully and deserves every support." This stimulating tribute has recently been received from a well-known member of the profession, and our readers will be glad to know that their efforts to help us to provide a weekly paper of which the profession in this country can be proud are appreciated. Those who have not contributed to this development should remember that for the improvement of the *Record* an ever-increasing number of contributors is essential, and they, too, should lend a hand.

Foot-and-mouth Disease Restrictions Withdrawn.

The Ministry of Agriculture and Fisheries announces that as from midnight on Monday last all the remaining general restrictions imposed by the Ministry in connexion with outbreaks of foot-and-mouth disease have been removed, no outbreak having occurred in any part of Great Britain since March 7th, when a case occurred in Staffordshire.

The last time when the country was entirely free from movement restrictions imposed on account of this disease was September 20th, 1925, but the period of freedom lasted for five days only.

The number of outbreaks during the first quarter of the current year was twenty-one, as against fifty-nine for the corresponding period of 1926.

Glasgow Veterinary College.

Considerable improvements have been effected recently in the lecture rooms of the Glasgow Veterinary College, and the Anatomy Department has been doubled in space by building to the back over the old stabling base. Here an annexe is to be set up for the use of the Anatomy students. In this side section, carcases required for general examination at discretion can be kept and wheeled along on rails as required to the operating tables. This arrangement will keep the central working department freer and roomier. Dr. Whitehouse, who has a constant eye for improvements, has done much at very moderate expense.

The subscriptions already received towards endowment of the College amount to about £8,000, but these have been in large sums. The half-crown to £1 or £5 men have not, so far, been touched. It is now proposed to test the West and South-West of Scotland in "smalls" of subscriptions at the principal shows.

Diseases of Animals Bill.

In Standing Committee B of the House of Commons on March 31st, Mr. Noel Buxton, Minister for Agriculture in the Labour Government, moved the following clause to the above Bill:—"Where the Minister, under the powers conferred upon him by the principal Act, causes any animal or animals to be slaughtered the compensation awarded shall, where the slaughter results in depriving an agricultural worker of his employment, include compensation to such worker upon a scale and subject to conditions which would apply if the worker had been an insured person within the meaning of the Unemployment Insurance Acts, 1920 to 1926, and qualified to receive unemployment benefit."

Mr. Guinness, Minister for Agriculture, said if they were going to give compensation under present conditions not only for cattle seized and slaughtered in the public interest but for contingent losses, they would be opening a very wide door for a really very small purpose. He asked the Committee to reject the clause.

The clause was, however, carried by twelve votes to eight, and added to the Bill, which was reported to the House for third reading.

Army Veterinary Service.

London Gazette. War Office. Territorial Army. Reserve of Officers.

Capt. H. Burrell having attained the age limit relinquishes his commission and retains his rank (March 30th).

Air-transport for Livestock.

The Argosy twenty-seater aeroplane of Imperial Airways had a curiously mixed cargo for the Continent recently, when it conveyed to Paris 800 one-day-old chickens which had come from Gloucester, 1,000 eggs for sitting and seven two-month-old Pekingese puppies. The poultry and eggs were sent on to Madrid by train from Paris, and the dogs were sent to Switzerland. The same morning, by another machine, three Kerry Blues were consigned to Berlin. The advantages of air-transport, the consignors find, are that the livestock is less subject to fatigue and that there are fewer periods without proper attention than there are when the ordinary routes are used.

Members of the Mid-West and South Wales Division are asked to note that as the usual date of the Spring Meeting (the third Friday in April) is Good Friday, it has been decided to hold the next Quarterly Meeting on Friday, April 29th. The meeting will be held at Bath, and Major Kirk will give a paper and demonstration on "Ultra-Violet Ray Therapy."

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

Lethal Chambers.

To the Editor of The Veterinary Record.

Sir,—A great deal of humbug is talked and written about so-called "lethal chambers" for the destruction of dogs and cats.

In the public mind the term "lethal chamber" connotes an easy and painless death, quite free from avoidable distress or consciousness of impending disaster. In fact, it is, as a rule, a desperate ending against which the victim struggles long and distressfully. The lower animals, with their relatively slightly-developed cerebrum, are not nearly so susceptible as are human beings to the action of anæsthetics and narcotics; for example, a cat may retain its consciousness after a dose of morphine more than enough to kill a man.

In a "lethal chamber" more or less filled with chloroform vapour, a dog or cat may, and often does, retain its

consciousness for at least ten minutes while striving to find an exit.

The sentimentalist, while applauding the "lethal chamber" of which he knows nothing, would clamour for the prosecution of the yokel who should throw into a pond or river a dog with a stone tied to its neck, yet of the two means of destruction the latter is the quicker and the less distressing.

The only really humane way to destroy the lower animals is by shooting them through the brain. No careful observer who has experience of the several methods of destruction would adopt any other method than shooting, where practicable, if his primary consideration was a humane one.

Not in any combative spirit but simply with a view to the prevention of unnecessary suffering on a great scale let it be said that there could not be found in this country a more proper object for prosecution under the Cruelty to Animals Acts than one of those charitable institutions where numbers of dogs and cats are destroyed simultaneously by means of the haphazard use of chloroform in "lethal chambers," a daily repetition of "The Black Hole of Calcutta." The ignorance of the executive would probably preclude the essential charge of "guilty knowledge," but the publication of the facts would no doubt lead to a much-needed reform in the methods of destruction, if not in the management of these institutions.

The foregoing references to "lethal chambers" are concerned with those in which animals are destroyed by means of chloroform vapour: I am assured that asphyxiation by means of coal gas is relatively free from objection.

It is not possible to admit that any method of destruction which is not instantaneous is entirely free from humane objection, but it seems to be generally agreed by those who have experience of the coal-gas method that it is preferable to chloroform. Unconsciousness is produced more quickly and there is a certainty about the proportion of the lethal agent which is lacking in the use of chloroform: the proportion of chloroform vapour to air in a "lethal chamber" obviously depends on many variable conditions. The thing to remember, however, is that the susceptibility of the lower animals to any sort of anæsthetic or asphyxiating agent, *so far as the retention of consciousness is concerned*, is greatly less than that of man and that death by these means is consequently less easy for animals than for man.

The anxious mewing cat has saved the life of more than one human being who otherwise would have passed from sleep to death in a gas-filled room.—Yours faithfully,

J. W. RAINEY.

London,
March 29th, 1927.

"Vet."

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—One cannot read Mr. Tutt's opinion on the use of the word "Vet." without congratulating him on so frankly expressing it. This opinion I have myself been secretly cherishing for some little time.

Shortly after qualifying I regarded with horror those of the laity who called me a "Vet." But when, on using the term "Veterinary Surgeon" once or twice to people who met me with an enquiring look or a blank stare, my ideas underwent a change.

The word "Vet." comes naturally to the laity, and always will do so: the term "Veterinary Surgeon" is strained and pedantic—and what a mouthful it is over the 'phone (or should one say telephone?)

Anyway, who cares what we are called? The profession is judged more by the behaviour of its individual members than by any name which may be used to designate them.—Yours truly, HUGH C. WATSON.

Rattray,
Perthshire,
3rd April, 1927.

Conditions Classed as "Influenza" in the Cat.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—I am sorry to see that Professor Smythe has to fall back on Continental veterinary writers for a name for a common disease of cats. This seems a great reflection on British veterinary literature. Personally, I consider that under the common name of influenza, three, if not four, totally different diseases are classed. These are (1) *epizootic* or *specific gastro-enteritis of the young cat*, although, when making a *post-mortem* one rarely finds much inflammation, if any, of the stomach and intestine, and death appears to be due to the toxic effect of the specific germ: mortality 90 per cent.; (2) *specific gastro-enteritis of the old cat*, generally affecting animals of two or more years old in contra-distinction to the other form affecting cats under a year or thereabouts. The symptoms are the same but not so severe, and the cat in most cases recovers. Both of these are commonly called gastric influenza of the cat, although I doubt if they are due to influenza or distemper, but think that they are distinct diseases; (3) *Influenza* is more common in the cat than is generally supposed, and is seasonal, as in the human being, although difficult to differentiate from distemper. One finds that one attack does not prevent the animal from having another, time after time, whereas with distemper it is rare for an animal, once it has properly recovered from it, to have the same type of illness again; (4) *Distemper* is difficult at first to differentiate from influenza except by the length of the illness, which extends to four or five weeks or more, and perhaps opacity and pitting of the cornea, as in the dog.—Yours faithfully, T. F. PRIME.

Upper Norwood, S.E.,
5th April, 1927.

White Heifer Disease.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—I read with interest the letter *re* white heifer disease by Mr. Campbell. He mentions the small amount of fluid in many cases of the disease after recent service. If these cases are examined within a few hours of service, no fluid will be found, in considerably more than half the cases. When we are treating these particular cases we are actually treating cases of vaginitis and the small amount of fluid referred to is the result of the vaginitis. This accumulation has a very different relation to white heifer disease from the accumulation of fluid in a case where the subject has not been served. This fluid, whether it be in a case of white heifer disease or in a recently-parturient subject, I consider should be removed. In the cases of vaginitis after parturition this fluid is usually brought away, little by little, by the patient straining, but in white heifer disease the membrane makes this impossible.

With regard to a subject breeding after treatment, I have one such on record. Mr. Campbell suggests that it is possible that there are cases where the act of service punctures the membrane and effects a cure. I have known of white heifers to bleed after service, also to strain, and have considered these cases to be white heifer disease. Some have conceived from that service.—Yours faithfully,

O. STINSON.

Appleby,
4th April, 1927.

The Editor acknowledges the receipt of the following:

Report of a Meeting of the North Wales Division, from Mr. Howel V. Hughes, Hon. Secretary.

Report of a Meeting of the North of Scotland Division, from Mr. J. McAllan, Hon. Secretary.

Communications from Messrs. W. E. Blackwell (Towcester), H. Gray (London), J. B. Griffiths (Bolton), R. E. Montgomery, and J. K. Shaw.

National Veterinary Medical Association of Great Britain and Ireland.

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